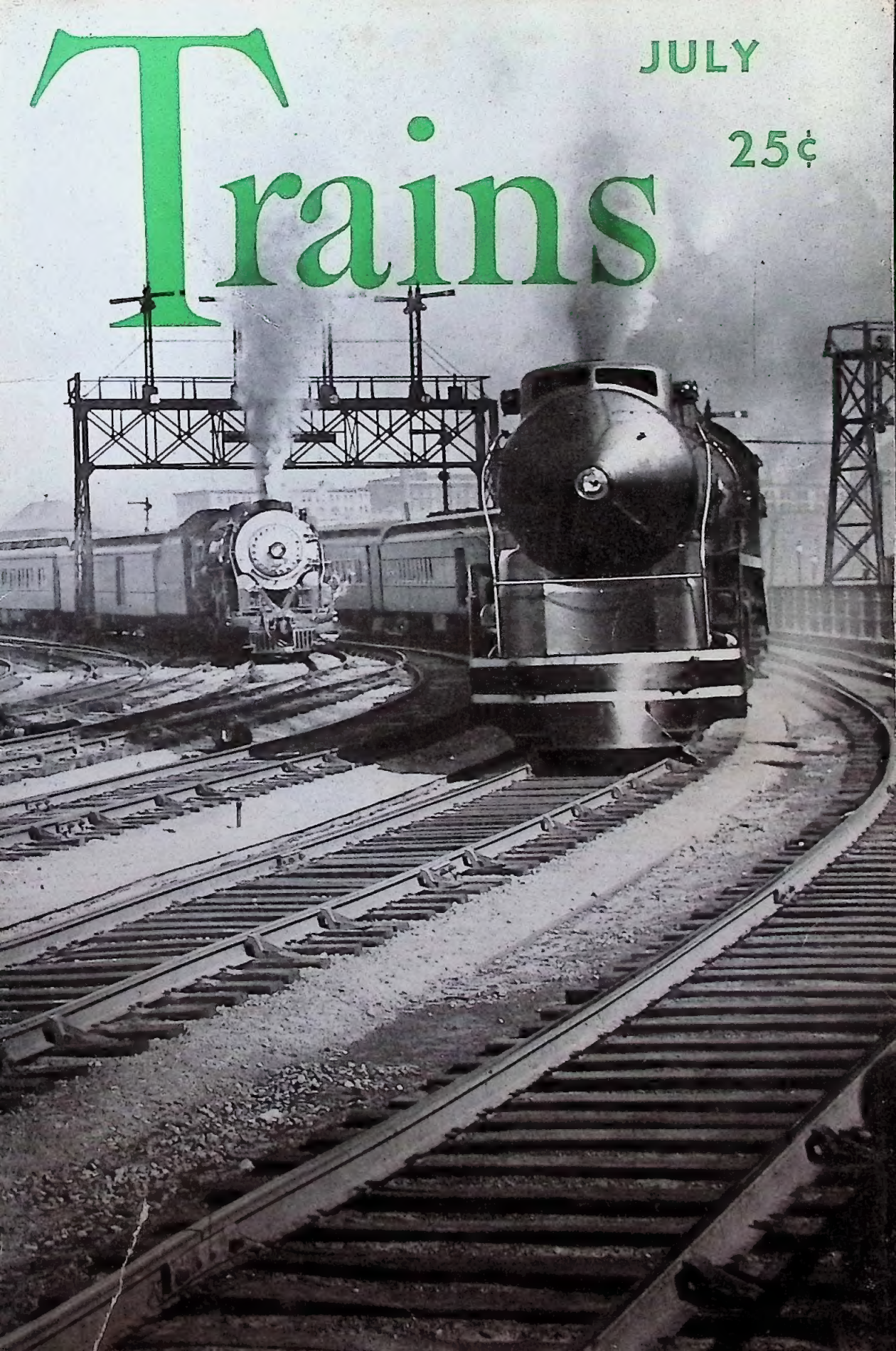
Trains

JULY

25¢



A. C. Kalmbach.

Station stop.

Louisville & Nashville day local No. 3 stops at Calera, Ala., and two young ladies get aboard, bound for a weekend in Montgomery. No. 3 is a fast and popular overnight train from Cincinnati to Nashville, but from Nashville to Montgomery it travels by day and makes all stops, an interesting way to see a cross section of the central South from a principal north and south railroad line. Calera is a junction 34 miles south of Birmingham.

On the front cover.

Boston's South Station, used by the New Haven and the Boston & Albany, at one time enjoyed the distinction of being the country's largest and busiest passenger station. The streamlined New Haven 4-6-4 is heading south with a shore-line train for Providence, New Haven, and New York, rounding the curve just beyond the station throat. The other train is B&A, pulled by one of the 600-series Hudsons. To the right is the fence along the edge of the cut for an underground suburban loop, a feature of the station which was never completed. It was expected that the loop tracks would provide capacity for two trains a minute in busy periods, but it turned out that the tracks were two or three feet below high tidewater level and the expense of waterproofing, added to the cost of electrifying, made the scheme impractical. Nevertheless, South Station was the first large terminal to have loop tracks, an idea carried out later in New York's Grand Central.

Waybills

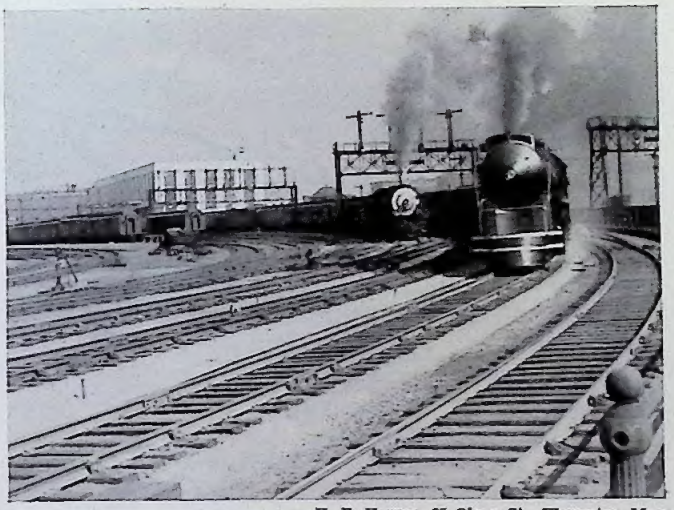
There's nothing quite like a day local when you are taking the train just for the ride. Exasperating as it is when you are in a hurry to get from one city to another, its very slowness is an asset when you want to see what there is to see along the seemingly endless right of way.

What limited allows you to capture the siesta atmosphere of a parched frame station in a dusty flagstop town? Or the opportunity to view the lazy operations of the way freight as it sets off a car of coal and picks up a load of grain, its ebb-and-flow exhaust and the cracking of coupler knuckles the only sounds other than the simmering of the local's own locomotive as it patiently waits for the highball?

What streamliner can give you such a feeling of downright fraternity with your fellow men? Only the local stops for the workworn farmer, the rural storekeeper, the roughhewn members of society. Some dressed as well as you or I, some in overalls, some taking their first ride on a train, besides a sprinkling of city folks who, perhaps, have been called from the way of the streamliner by the sickness or death of someone left behind many years ago—it's a cross-section of humanity you'll enjoy viewing close at hand, and whose homespun philosophy you'll like to hear.

Give me the streamliner for speed and comfort, a Pullman for travel at night—but for an opportunity to see a railroad and what it means to our country, give me the creeping day local!

W. V. A.



H. F. Harvey, 65 Olean St., Worcester, Mass.

Trains

Editors: A. C. Kalmbach, Linn H. Westcott, Willard V. Anderson

Vol. 2 July, 1942 No. 9

Features

THE UNBEATABLE CLASS H ---- 5
C&NW Northern-type locomotive.

RAILROADS AT THE FRONT ---- 8
By R. S. Twogood.

FORGOTTEN RAILROAD ---- 14
By Linn H. Westcott.

THE TWENTIETH CENTURY ---- 26
By A. C. Kalmbach.

NATION'S CROSSROADS ---- 30
By Harold M. Mayer.

MAPS OF ST. LOUIS AND VICINITY ---- 32
By Linn H. Westcott.

THE MAINE TWO-FOOTERS ---- 40
By Joseph Carter O'Hearn.

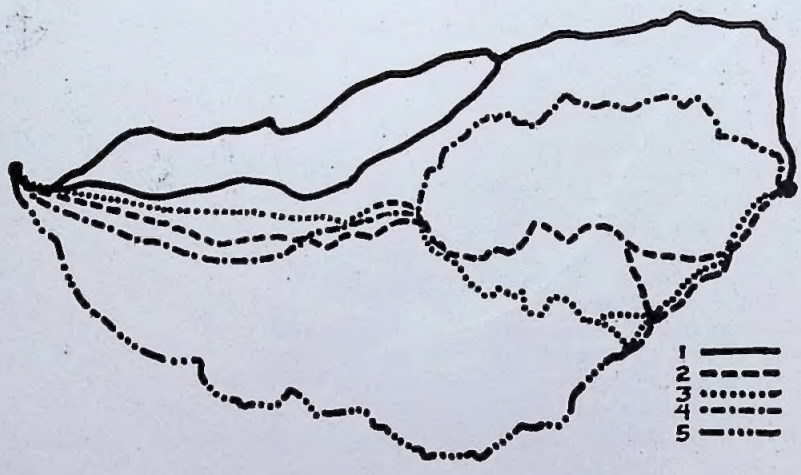
also Letters, News, and Miscellany.

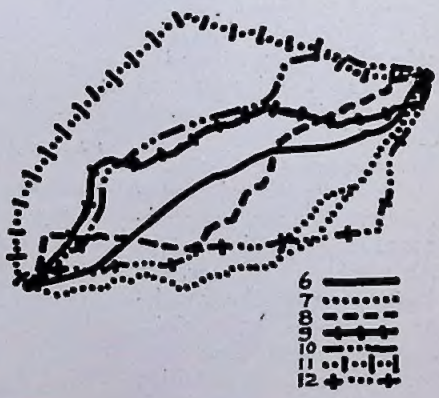
Published monthly by Kalmbach Publishing Co., 1568 W. Pierce St., Milwaukee, Wis., U. S. A. The title TRAINS is registered as a trademark in the United States Patent Office.

Entered as second-class matter Oct. 11, 1940, at the post office at Milwaukee, Wis., under the Act of March 3, 1879.

Subscription Rates: Per year in U. S., Central and South America, $2.50 Single copies 25 cents. In other countries, $3.00 per year; single copies 30 cents.

The first issue of TRAINS was for November, 1940. Most back copies available at 25 cents each. Vol. 1, bound in cloth, $4.00.





Can you guess these railroad routes between important cities?

These maps show the main lines between important cities in two different parts of the country. Each railroad company is indicated by a different type of line so that it may be traced from end to end. Both maps are to the same scale and one of the terminal cities is common to each. See if you can guess the names of the terminals and of each of the railroads connecting them. If you get the right names, give yourself a point for each; if the names are given to the right lines as well, two points. The terminal cities named correctly give you one point for each, so there is a possible maximum of 28 points. A score anywhere in the twenties is very good.

Hold your horses; these are the answers.

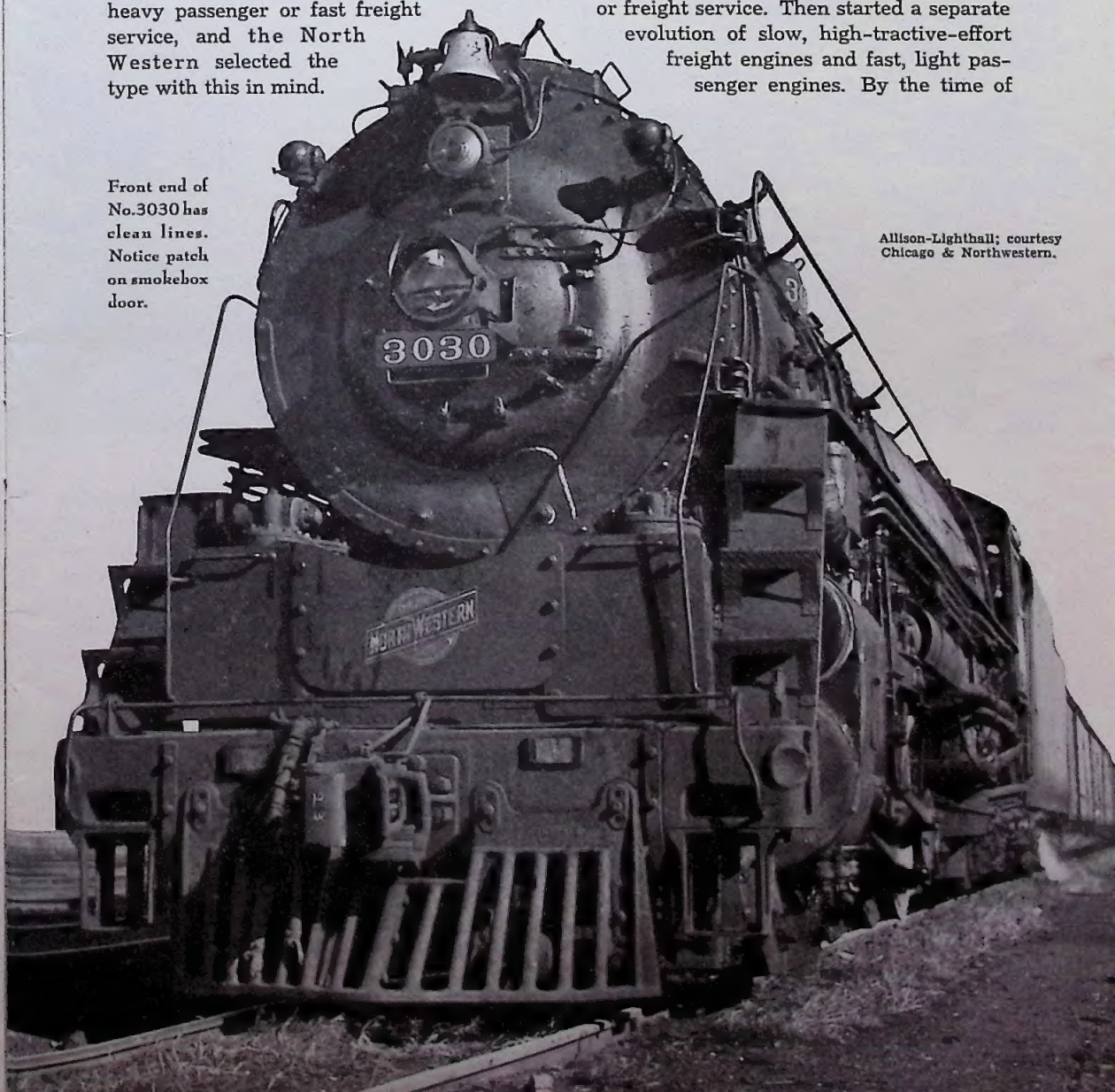
The upper sketch is a map of the trunk line railroads between New York and Chicago. No. 1 is the New York Central splitting at Buffalo to form the Michigan Central and Lake Shore routes by way of Detroit and Cleveland respectively. Pennsylvania's main line is No. 2; 3 is Baltimore and Ohio. The Erie, 4, skirts along the New York-Pennsylvania state line, then dives farther south in Ohio and Indiana. Last is the Chesapeake and Ohio, route 5, which runs from Chicago to Washington with through cars to New York. The smaller sketch shows the seven companies operating between Chicago and Kansas City. The railroads are in order as indicated by their numbers: Atchison, Topeka and Santa Fe, the shortest route; the Alton, now owned by the Baltimore and Ohio; Chicago, Burlington and Quincy; No. 9 is the Chicago, Rock Island and Pacific, which uses the same track on the Kansas end as the Chicago, Milwaukee and St. Paul, which is next. No. 11 is the devious Chicago Great Western, while the last route is that of the Wabash, now attempting to combine with the Pennsylvania system.

The Unbeatable Class H

★ **Popularized at the Chicago World's Fair, 1933, the C&NW Northern type has well withstood the tests of usage.**

JUST as K-4 can mean only the Pennsylvania K-4 Pacific, so, at least in the Midwest, does Class H mean only the Chicago & North Western's series of 4-8-4 locomotives built in 1929 by Baldwin. The 4-8-4 type of engine has been an outstanding favorite among new orders in the last decade because of its inherent suitability for either heavy passenger or fast freight service, and the North Western selected the type with this in mind. The large, 76-inch, driving wheels permit high speed with little track pound, and the four-wheel pilot truck contributes to ease of guiding on curves. The large firebox and boiler permit ample steam capacity for pulling big loads at speed.

Nearly a century ago the same locomotives were nearly always used for either passenger or freight service. Then started a separate evolution of slow, high-tractive-effort freight engines and fast, light passenger engines. By the time of

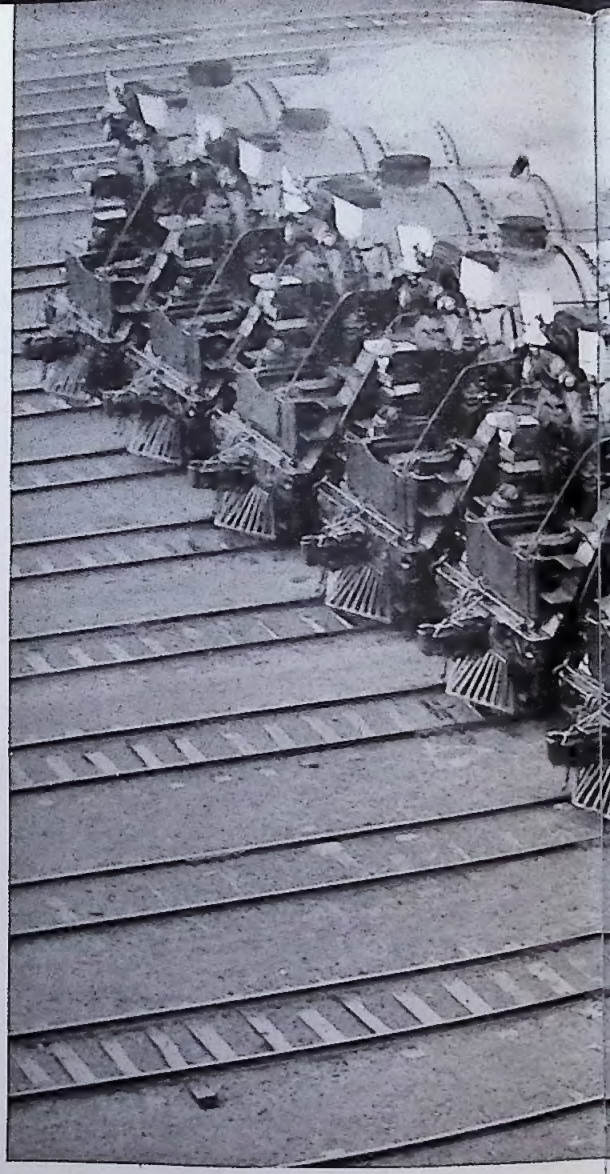


Front end of No.3030 has clean lines. Notice patch on smokebox door.

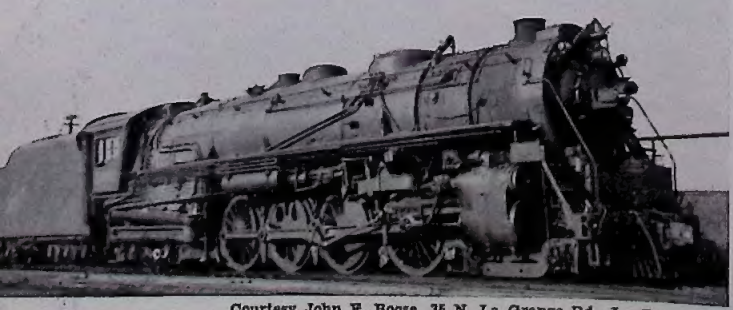
Allison-Lighthall; courtesy Chicago & Northwestern.

the World War the 2-8-2 or Mikado type was nearly universal for freight, but was utterly unsuited for fast service. The Pacific (4-6-2) and Atlantic (4-4-2) types were almost equally universal for passenger service, but had too light a drawbar pull for freight. But in recent years freight has speeded up, and the railroads are coming around again to dual-service locomotives. Thus the Class H and the many like it on other roads. The 4-8-4 is most often dubbed the Northern type, after its early use on Northern Pacific, but is also called the Confederation (RF&P), the Pocono (DL&W) and by other local designations.

When the Class H's arrived at Chicago they were placed in service on the *Corn King Limited* between that city and Omaha, and also on 16 other daily passenger runs and on freight trains. One of the series was placed on exhibition at the Chicago World's Fair in 1933, which of course enhanced its reputation with the public. Later came the somewhat less powerful, but faster, streamlined Class E-4 4-6-4's which have taken over many of the passenger runs formerly handled by H's, and in the present emergency every one of the 35 is at work on freight, mostly with through runs between Chicago and Council Bluffs and between Proviso (a few miles west of Chicago) and Altoona, Wis. They are daily hauling trains of 110 cars or more and are averaging 6500 miles per month. The 469-mile hike between Chicago and Omaha is accomplished without intermediate servicing.



The main frame, including the cylinders, frame crossties, valve gear and guide supports, extension cradle for the trailer, bracket for feedwater pumps and train-control equipment, is a one-piece steel casting 58 feet 3 inches long over all and weighing 72,500 pounds. It is the largest casting of its kind produced up to the time the H's were built. Total length of engine and tender is 103 feet 4 inches. The total weight on drivers is 288,000 pounds. This is always a rough guide to the possible tractive effort, which must be about one-fourth the weight on drivers, and in this case is 71,800 pounds, with



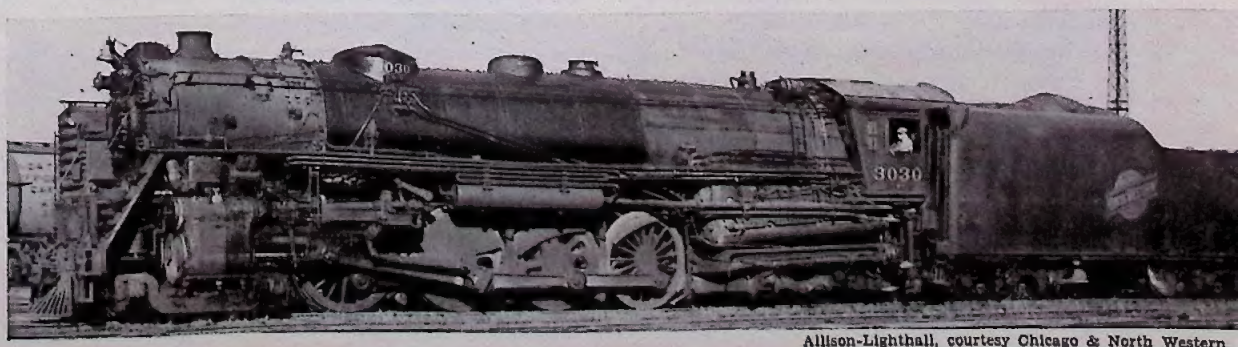
Courtesy John F. Boose, 35 N. La Grange Rd., La Grange, Ill.

A chorus of H's.

Now that we're at war you'll not see a lineup of eight H's (above). They're too busy. These engines have clean lines, straight running-boards on both right and left sides. The two air pumps are placed on the pilot beam, thus avoiding the usual humps in the running boards. The speed control can be seen on the right front pilot-truck journal-box. The line between Chicago and Omaha is equipped with continuous train control.

Chicago & North Western.

12,400 additional if the booster is cut in. The cylinder size is 27″ x 32″, and this, with the steam pressure of 275 pounds, gives a rough indication of the power of the engine. As with most any series of locomotives, there are some differences. Locomotives 3001-3025 are equipped with roller bearings; 3026-3035 have plain bearings. The train-control apparatus includes a maximum speed warning so arranged that by the flip of a lever it can be changed from the passenger-train speed limit to the freight limit, or vice versa.



Allison-Lighthall, courtesy Chicago & North Western.

Railroads at the Front

★ **Portable railroads do a better job of military supply with less manpower.**

*By R. S. Twogood.**

THE railroad is an important part of war. Experience in the World War outlines this, and even the high degree of motorization in the present war still leaves a big job for army railroads. In times of peace, War Department transportation is a matter of purchase or supply. It is arranged for by the Quartermaster Department in the same manner as the purchase of equipment. The War Department is not necessarily concerned in the details of this transportation except as to departure and arrival time. In time of war, transportation in the rear areas is still a supply problem, but the War Department is concerned to a greater degree.

But in the theater of operations, transportation becomes a part of army operations and ceases to be a matter of supply. The responsibility then rests with the chief of engineers of the army. During the World War about 70 per cent of all material purchased by the chief of engineers for construction, entrenchments, docks, barbed wire entanglements, etc., was for military railways. Transportation therefore becomes a major item of military engineering responsibility.

During the World War the chief of engineers organized a department of military railways under the leadership of S. M. Felton, former president of the Chicago Great Western. Col. J. Miliken, superintendent of motive power of the Pennsylvania, was his mechanical aid. It was my pleasure to be in charge of the design, purchase and construction of combat locomotives for the A. E. F. The operation of military railways in France came directly under Gen. Atterbury, former president of the Pennsylvania, who reported to Gen. Pershing.

In the early years of World War I the French, Germans and English had built a system of narrow (60-centimeter or 25⅝-inch) gauge railways parallel to the front. This narrow-gauge system was designed for the distribution of men and supplies along the front. Standard-gauge lines were built as feeders to the narrow-gauge systems. When the American forces went to France they accepted this standard procedure and we shipped to France large numbers of narrow-gauge steam and gasoline-driven locomotives and other equipment to construct a narrow-gauge railway behind out-front lines of supply of the A. E. F. Tracks could be laid down very quickly and operated over within a few hours. Very often these lines, which were subject to shell fire, were blown out during the day, repaired in the evening and supplies sent forward before daylight.

With standard and narrow-gauge systems, it was necessary to build large transfer yards where material could be transferred from standard to narrow-gauge equipment. With modern bombers and other fighting airplanes it is doubtful whether such transfer yards could be maintained. Because of this changed situation, the chief of engineers has abandoned the idea of a narrow-gauge railway, substituting standard gauge with light equipment.

The modern railroad trend is toward high speeds, heavy roadbed and heavy axle load. Now, obviously, high-speed streamlined trains would be rather out of order within the combat zone. It would hardly be practical to lay down a heavily ballasted roadway after dark to be operated over before morning, or to make heavy repairs of such roadbeds after damage by bombing so that they could quickly handle heavy equipment.

Within the theater of operations, especially the combat zone, repairs to existing railways will necessarily be for the movement of low-speed, light equipment. This will especially

*Fuel Engineer, Southern Pacific Company. Abstracted from a paper presented before the Pacific Railway Club.

U. S. Army Signal Corps.

Narrow-gauge troop trains.

Practice-railroading somewhere in the U. S. A. are these 60-centimeter-gauge troop trains designed for short hauls in the combat zone.

be true of any new construction that may be necessary. Commercial railways are built to handle people and material between large cities. During combat, railheads may be changed frequently so that supplies can be delivered to divisions or other units wherever the military situation requires.

Because of the gradual change to heavy equipment there is very little light equipment in this country today, especially locomotives with 40,000-pound load per axle or less. Also, during a war, existing transportation equipment is badly needed in rear areas, making it necessary to build new equipment for the combat zone.

In 1918 the narrow-gauge railways were of very light construction, permitting rapid extensions of lines or changes in routing. Twenty-five-pound rails were used, bolted to steel ties. Rail-length sections were assembled so that flat cars loaded with these sections could be shoved ahead of locomotives and laid almost as fast as gangs of men could drop the sections in place. Very little attempt was made to prepare a roadbed for quick construction. Narrow-gauge gasoline-driven locomotives of 15 and 20 tons were standard. Steam locomotives weighed about 25 tons and were of the side-tank type. All narrow-gauge locomotives had skid rails front and rear to reduce the tendency to tip over in case of derailment.

The side-tank steam locomotive on 60-centimeter track looked about like a monorail locomotive. It was not uncommon when standing where the track was not level for water to run from the high tank to the low tank, causing the locomotive to tip over. The 15-ton gasoline mechanically driven locomotives had 35-horsepower engines, two axles

U. S. Army Signal Corps.

U. S. Army Signal Corps.

Then and now.

A closer view of the modern 60-centimeter-gauge military locomotive (left), and the 1918 railhead of the 36th Division in France.

side-rod-driven from the differential. The 20-ton gasoline locomotives were similar except that they had 50-horsepower engines.

Due to the necessity of quick action these locomotives were of the standard contractors' type. After some experience in France it developed that many changes in design were necessary to meet war conditions. In the early Fall of 1918 new designs had been developed covering a three-axle gear-driven locomotive with 75-horsepower gasoline engine, a low center of gravity, four speeds forward and four speeds reverse. Very low speeds were necessary to permit handling trains up quite steep grades, behind hills, where it was possible to keep out of sight of the enemy. In the Summer of 1918 an interesting cablegram was received from Gen. Atterbury, requesting immediate shipment of a sample order of 50 locomotives of the following general specifications:

Sixty-centimeter gauge, not over 28 inches high, not over 28 inches wide, 20-horsepower gasoline-driven, noiseless.

It does not take much imagination to know that these engines were wanted for operation in trenches near the front lines. One manufacturer, in submitting his outline drawing of such a locomotive, labeled it the "Cooty Chaser," indicating that he understood perfectly well where the locomotive was to be used.

Standard-gauge locomotives used for military service in France were of the Consolidation type, weighing about 160,000 pounds on drivers.

In 1918 the chief of artillery insisted on internal-combustion motive power for placing railway-mounted guns in battery. Obviously, in preparing for a military movement a great deal of heavy equipment like artillery must be placed in position some time before the zero hour. If such positions are detected, hasty retreats may be necessary. Locomotives must be kept under steam, ready for instant use. Steam locomotives are bound to accumulate more or less soot in the flues, and if required for heavy work on short notice will give away their location because of the smoke or flash of fire. It was for this reason that the chief of artillery insisted on internal-combustion motive power.

One of the serious problems in rail transportation in the forward areas in time of war is the lack of understanding between military and rail officers. Railroad men think of tonnage and schedules; the army officers are thinking in terms of military strategy. In the rear areas it may be possible to move heavy freight and passenger trains, but as the front is approached movements are more and more dependent upon the military situation. In the combat zone each military unit must move with all of its equipment ready for instant combat. This means mixed trains instead of passenger and freight trains. Engine loading, etc., cannot even be considered. Also, units must be moved into the forward areas in the right order so as to build up a defense line to meet an enemy attack. Movements may be at night, running without lights.

The commanding officers of divisions and larger units are confronted with the military game of winning a battle. They do not have time to sit down and explain the situation in

detail to all subordinate staff officers. Railway officers who receive copies of a commanding general's orders must therefore be in a position to interpret the military situation from the field orders and know what they as railroad men are expected to do. We do not know where or when the emergency may arise, or how many of us may be involved in forward area transportation. If such a time should come we must not only meet our transportation problems but make it fit the military situation, realizing that the main object is not just one of transportation but of winning a battle.

I do not want to go into detail on other than rail transportation in the forward areas, but must mention just one or two things in regard to truck transportation.

There has been a great deal of discussion in regard to truck transportation replacing rail transportation in the theater of operations. There is undoubtedly a big place for truck transportation in this area just as there is for truck transportation to coordinate with our railway transportation commercially. Perhaps one or two examples will be sufficient to illustrate my point: An army division is a comparatively small unit on a modern battle front, yet the base supplies of food, clothing, gasoline, etc., amount to a few hundred tons a day. Combat material such as ammunition is extra and depends upon the activity of the unit. One supply train—or ram train, as it is called—may easily bring all the needs to such a division, using hastily constructed emergency tracks upon which to travel. Comparison of the number of individual units, and of the added manpower to operate them if trucks would be used, is very much in favor of the railroad.

The combat zone may or may not be located where highways and railways are plentiful, but due to damage from bombing it is almost certain that extensive highway and railway construction or repairs will be necessary. Light railways may be thrown down across fields or almost anywhere with a minimum of grading, thus making it possible to move large tonnages quickly. Highway traffic is always congested in the forward areas. In dry weather passenger autos can operate over dirt roads, but trucks of medium or heavy capacity need a considerably better roadbed if large numbers are to be operated. To open quarries, crush rock and haul it to surface such roads takes time, men and equipment. It would therefore appear that fewer men will be required to construct and maintain railways than highways for an equal amount of traffic. It is also believed

Straight track.

Right in the heart of the Rocky Mountains is one of the longest stretches of straight track in the country, 52.8 miles on the Denver & Rio Grande Western between Villa Grove and Alamosa. Most of the distance is narrow gauge, some of it three-rail, and it is laid along the smooth floor of the San Luis Valley, surrounded by rugged ranges.

U. S. Army Signal Corps.

Standard-gauge locomotives of World War I, built by the 19th Engineers, stand ready for work.

With track in bolted-together sections, Yank engineers push the railhead northward in France, 1918.

Quaint French locomotive pulling train out of Monpont station with relief troops for 84th Division.

that the ram train can be maintained with fewer men and equipment than would be needed to maintain trucks doing the same job.

In fighting a battle, the general is interested primarily in the number of men actually on the firing line; they are the men that determine his firing power. But to support these men it is necessary to have a large number of men in the rear. Obviously, it is not to his advantage to use 100 men under his command for operating trucks if five men could operate a daily train, leaving 95 for the firing line. Advocates of the truck can raise many good points to support the use of trucks. For many short-haul requirements for distribution of supplies to smaller units the truck is undoubtedly essential.

Two years ago, during the Fourth Army study of the Pacific Coast defense problem, the nine Western railways cooperated with the War Department, dispatching trains on paper as the problem developed. This gave both the army and the railroads valuable information. A few weeks before war was declared a troop movement was made between different states. Both trucks and railways were used. The two divisions moved by truck required a column of trucks 75 miles long for each division. The newspapers had considerable to say about the congestion on the highways during this movement. In time of war, of course, the army would come first, and other traffic if and when there were room, but it is difficult to imagine 25 or 50 divisions moving on existing highways.

Northern Pacific.

A busy spot in the morning.

The east end of St. Paul Union Station is without a doubt the best place in the Twin Cities for train-watching. Although the layout is of the through type, trains of most railroads leave eastward to go west to Minneapolis, and wye northeast of the station. Because of this maneuver most trains, like the North Coast Limited shown here, pass the east approach twice, once when they arrive and once when they leave. From 7:30 to 9 in the morning several dozen trains can be seen from the viaduct east of the station, including the Empire Builder, North Coast, Olympian, Great Northern Fast Mail, Viking, Victory, North Western Limited, Manitoba Limited, Black Hawk, Morning Zephyr, Namekagon, Mark Twain Zephyr, Morning Hiawatha, and innumerable locals.

Narrow-gauge footprints.

Before the days of automobiles and the Pacific Electric, San Bernardino Valley was served by narrow-gauge "motor" lines to Redlands and Highland. All that is left today of these pioneer lines is a bit of embankment well cropped with weeds here and there, and this crossing (right) at Third and Rialto in San Bernardino. Perhaps more astounding, unless you are familiar with Colorado, is the crossing of the Colorado & Southern and the Denver & Rio Grande Western at Leadville (below). The C&S still operates a 12-mile remnant of the old South Park line between Leadville and Climax on the Continental Divide. The track is three-foot gauge, but just in case the line was ever to be made standard gauge the extra frogs were included in this crossing. To make matters worse, the branch of the D&RGW from Leadville to Ibex (running from right to left) was once narrow gauge, later converted to standard. So here is a crossing used only by narrow gauge one way, only by standard the other way, yet providing for both gauges on each track—nine frogs do the work of four. The line to Ibex, incidentally, goes higher than any other standard-gauge railroad in the United States except the cog railroad up Pikes Peak—11,600 feet. Notice the stub switch in the distance.

Jack Whitmeyer, 3450 Russell St., Riverside, Calif.

Linn H. Westcott.

Forgotten Railroad

★ Colorado Springs & Cripple Creek District Ry. was typical of the more pretentious mining roads of the West.

*By Linn H. Westcott.**

IMAGINE yourself magically transported back to early Summer in 1902. You live in a gingerbread house on Elm Street, the white one with the cast-iron elk on the front lawn. There's a hitching post and stepping stone out in front by the gravel street, and four times an hour the new electric street car grinds its way around the corner and disappears between rows of willow trees.

But you're at the office now, feet up on the roll-top desk in a stuffy store window across the way from the courthouse. After the usual morning routine the daily paper gets its turn. Headline: BRETE HARTE DEAD. . . . He wrote *The Luck of Roaring Camp,* one of the first documents of the human side of mankind, and was an authority on Western frontier life. Wouldn't it be something to see the mining camps in action! You glance into the paper. There's an ad for the new *Twentieth Century Limited* making its first run June 15. But look at this down here:

"Visit beautiful Colorado Springs, see fascinating Cripple Creek Mining District, gorgeous Pikes Peak, famous Manitou Springs and the Garden of the Gods, Cave of ———" and so on, "via the Rock Island Railroad, the quick way to the Rockies."

It isn't long before the family is riding across the plains, little Mary pushing her nose against the glass, and Johnny quite disappointed because there are no Indians galloping along with the train.

As the porter lights the gas lamps in the car he tells how unfortunate it is that it will be dark when the train approaches the mountains. "They rise up from the distance like storm clouds back in Virginny —man, they is a pretty sight! When you get to the Springs, go to the hotel jus' one block north of the depot; that's a fine place to stay."

After two days of visiting all the common sights at the Springs, two days you'll never forget, you happen to get talking to a portly gentleman in the purple-carpeted lobby of the hotel. It turns out he's a mining engineer who made his

Collection of John C. Carter, 176 Hicks St., Brooklyn, N. Y.

Eastbound passenger, 1902.

Between Duffields and Summit the main line skirted this granite cliff known as Devil's Slide. Here the line is 9500 feet above sea level.

* With the assistance of John C. Carter, Mac Poor, Jack Thode, T. G. Wurm and H. A. Stanley, who kindly supplied valuable material.

L. C. McClure, 2128 Glenarm Pl., Denver, Colo.

In days of plenty.

One of the much-advertised attractions on this scenic mining railroad was St. Peter's Dome. A returning train of empty ore cars with its pusher engine echoes against the crags.

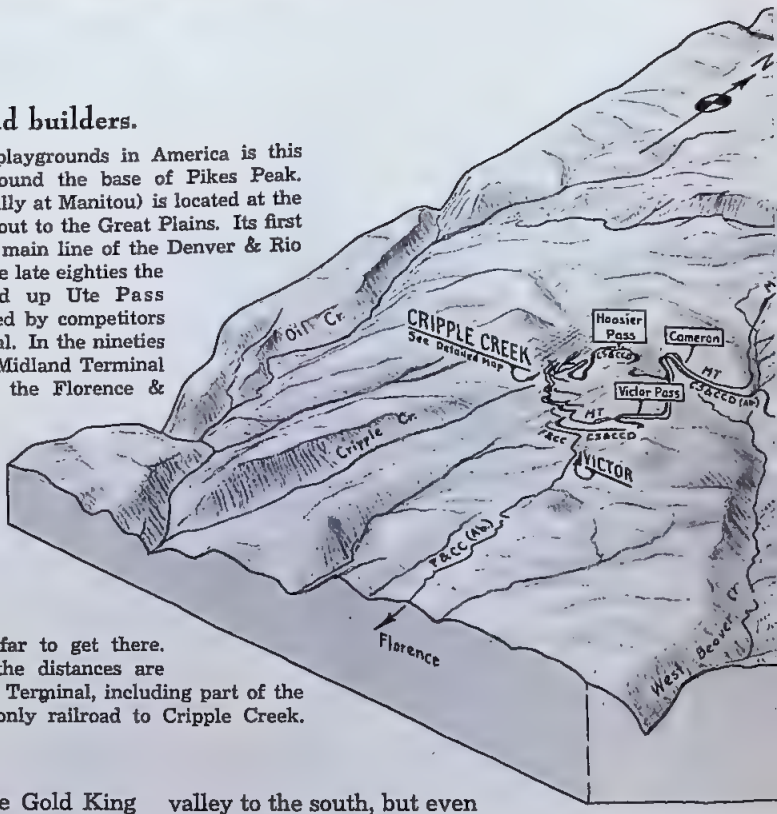
stakes at Cripple Creek, and he is already thinking about retiring.

"When I came to Cripple Creek—that was only 10 years ago, but seems like 20—the camps had been active scarcely a year and the best of the mines had not yet been located. It all happened for me by accident; you see, I was an oil-claim specialist back in Titusville, Pa.; got mad at the fellows I was working with and headed for Canon City, southwest of here, where there was quite an oil field a few miles north, in Oil Creek. Somehow I got to talking to an old prospector here in the Springs on the last day of my trip, and I decided to go to Canon City by way of the mining camp.

"There was a dirt road into Cripple Creek from the Florissant station of the old Colorado Midland in those days. Ordinarily you could ride the wagons returning to the camp, but the previous week had been so wet that I had to walk the 16 miles in mud. I tell you I was tuckered out when I reached the mines. Sort of liked the setup, though; a lot of tents and a few log buildings stood where the town was built the following year. On the east was a steep ravine called Poverty Gulch. That's where a fellow named Womack found some

Tough going for the railroad builders.

One of the most compact outdoor playgrounds in America is this chunk of the Rocky Mountains around the base of Pikes Peak. Colorado Springs (the springs are really at Manitou) is located at the point where Fountain Creek washes out to the Great Plains. Its first railroad was the then-narrow-gauge main line of the Denver & Rio Grande. Later came others, and in the late eighties the Colorado Midland pushed westward up Ute Pass toward the Pacific, only to be stopped by competitors and lack of capital far short of its goal. In the nineties came the Cripple Creek boom. The Midland Terminal tapped the mines from the north, the Florence & Cripple Creek from the south, and later the "Short Line," alias Colorado Springs & Cripple Creek District Railway, built its super-scenic line up the front escarpment, around the loops at St. Peter's, then over a series of ridges to the mining district. The air-line distance between the two terminals is a little over 20 miles, but the railroads went twice that far to get there. Since this map is in perspective, the distances are greater at the far side. The Midland Terminal, including part of the old Colorado Midland, is now the only railroad to Cripple Creek.



rich dirt in 1890 and located the Gold King Mine across the Midland Terminal wye. The Midland Terminal—in fact, any railroad—wasn't there yet, and travel into Cripple Creek was a matter of days if you weren't real lucky."

This new friend goes on to tell you how he was over at the foot of Mount Pisgah, scarcely two miles west of Cripple Creek, to look at the old diggings of 1874 that disappointed so many prospectors. After that and a similar rush in '84 people didn't expect much to come from these mountains—that is, except for this fellow Womack, who was a sort of cow-hand. "Womack kept diggin' holes here and there and gettin' his boss mad by doing it, but when he found the Gold King claim the story was different. Just the same, he sold it soon for $300 and in the next 10 years the new owners took $250,000 out of that hole.

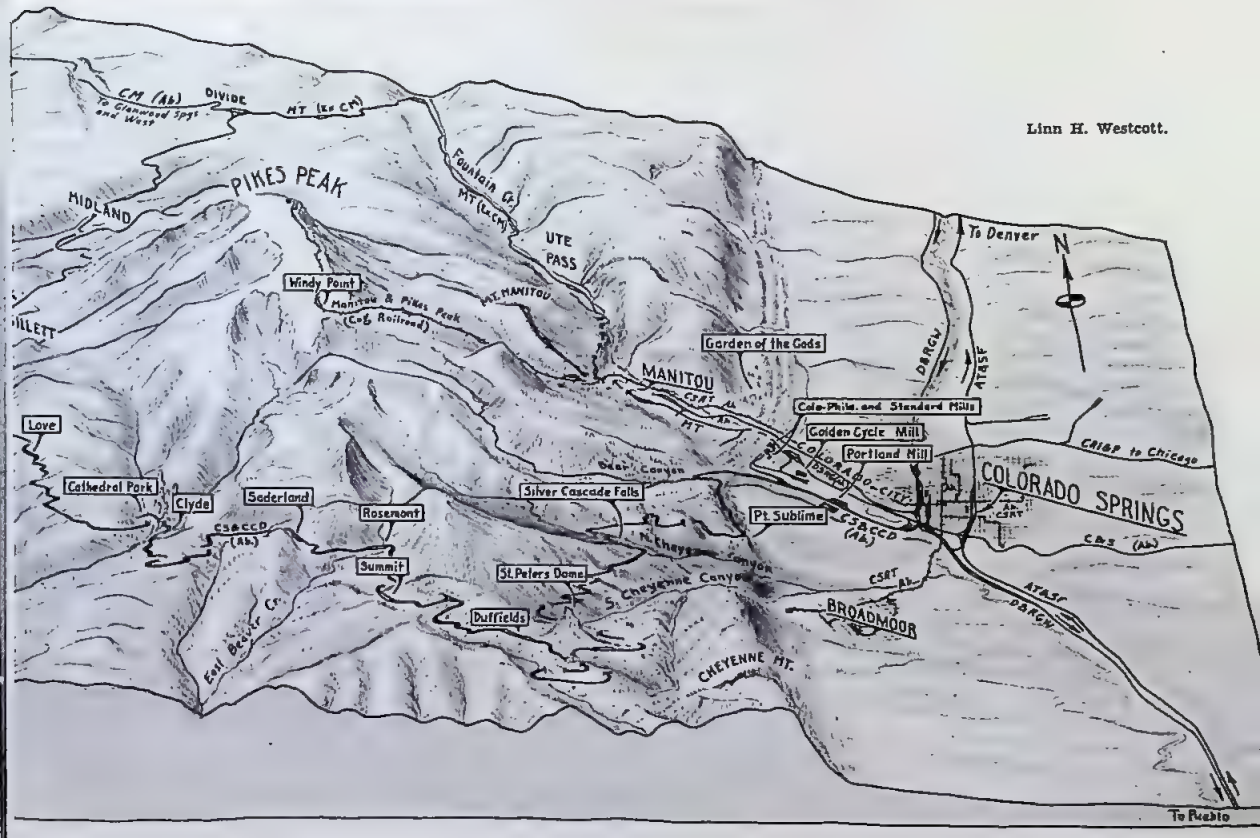
"Well, while I was over at Pisgah, as I was saying, I sort of got the prospecting bug myself, and I never did get down to Oil Creek. There were prospectors already diggin' holes all over Gold Hill, Mineral Hill, and in the valley to the south, but even if I was an oil man it seemed to me that, the way the land lay, there should be better findings on the other side of Gold Hill. Before my trunk arrived I was out there with a mule and a brand new diggin' outfit, trying samples in the gulches first, later on the sides of the hill.

"It was while I was diggin' up on the sides of Battle Mount and Ball Cliff that I had my luck. My claim became part of the Portland Mine, one of the best in the district."

Well, the conversation goes on to the trials and tribulations of mining partnerships, the fluctuating costs of supplies, assaying frauds, and—oh, yes—the transportation problems.

"Glad you mentioned it, partner; railroading has become quite a fad with me of late. The fellows that own our mine had a lot of trouble with the Midland Terminal and the Florence & Cripple Creek, and last year we built our own railroad to Cripple Creek—the finest little railroad in Colorado, we think.

"The Midland Terminal built down from the Colorado Midland at Divide in '93, and barely beat the Florence & Cripple Creek narrow gauge from the south, both lines reaching Victor and Cripple Creek in '94. Everything was fine until the two companies got together on their rates and held us miners up for a good share of our profit,



sometimes all of it. A New York outfit known as the Denver Southwestern Railway Company bought both companies in 1899 together with the Golden Circle Railroad, a narrow-gauge feeder that tied a bow knot on top of the hill. They also got thick with the mills that reduced the ores here in the Springs and at Florence, so they had us from every direction.

"But we weren't caught sleeping. Five years ago we built a 6.2-mile electric interurban line up Poverty Gulch, swinging around the top of the hill to an elevation of 10,560 feet, the highest interurban in the U. S. It connected Cripple Creek and Victor by way of the upper summits, and the experience we had in building the line came in mighty handy when we decided to build all the way to Colorado Springs. The original company was the Cripple Creek District Railway Company, but we changed the name to Colorado Springs & Cripple District Railway even before the electric was completed.

"The new steam line starts about a mile from here and works right up the side of the mountains, then turns west to the mines. It is 45.82 miles long, 10 miles shorter than the Midland route. We named it the Cripple Creek Short Line. It has a beautiful roadbed, nine tunnels and a number of curved timber trestles. The last spike was driven last year and in the meantime branches were built in the district and a new low-level interurban line was built to Victor, so the electric now forms a circle route.

"The railroad was not intended as a passenger line, but the success this season has been very gratifying. In fact, we received, in the first six months, $300,000, including the freight revenue, and it cost only $186,000 to operate the line. Of course we've got two million dollars of bonds to pay off sooner or later and interest and taxes must come out of that apparent profit. In all, we have 84 miles of track, 12 miles electrified. And with the increasing loadings at the mines the prospects look good.

"Ride up on that line; you'll never forget it."

And so you do.

Cripple Creek Short Line in 1902.

THE train, four open-end coaches behind a huge (for 1902) Consolidation, pulls out of the station on a sunny afternoon. All the car windows are open and the sun-warmed

Two levels at Tunnel No. 8.

Two levels of the hairpin loops between St. Peter's and Duffields can be seen with Cheyenne Mountain as a background in this photograph. The photographer used a clever trick in order to get the same train in the picture upon each level. The view on the opposite page was taken from a point near the upper locomotive in this scene.

L. C. McClure.

air breezes through. Mother is very perturbed because Johnny leans so far out the car windows and Mary insists upon playing with the ostrich plume upon her straw hat.

After crossing the almost-dry bed of Fountain Creek as the conductor punches tickets, the train turns directly toward the mountains as though to attack them. Over to the left is the Portland Mill, where the railroad's loads of ore are reduced; on the right, as you climb a ridge, is a wye connecting with the Standard, Golden Cycle and other mills. The great bluff of mountains, now only a mile in front of the train, is a fault or block that was pushed far above the plains in ages past. The train enters Bear Creek Canyon and the rock cropping out on the far side echoes the puffing while everybody leans out the left-hand windows to see the beautiful timber trestle ahead. This bridge swings the train around to the east. But not for long, for the train immediately starts climbing right up the side of the bluff. At Milepost 5 it has risen 1000 feet above the city, scarcely two miles away as the crow flies.

Rounding Point Sublime the train swings into the upper extremities of the bluff. Out on the point is a wooden sign freshly painted to name the rock that forms a steeple between the track and the plains. Far below is the Broadview Hotel and Resort, and beyond, just miles and miles of what now by comparison looks like flat land. But three days ago you traveled that stretch on the Rock Island and you know it is anything but flat.

Around the curve is Tunnel No. 1, perfectly straight, and cut through reddish volcanic rock. A little spring trickles out of the side of the cut and a gang of trackmen sits in the shade while the excursion train clicks by. Steadily the engine pulls its gliding train through more tunnels, into deep canyons, across them by curved trestles, and back to the face of the bluffs for another breath-taking view.

From the north side of North Cheyenne Canyon one can see, across the chasm, a tunnel through a solid dome of granite, leading directly onto a sturdy trestle. Below, Silver Cascade Falls glistens in the sunlight. In a moment the train pierces that same tunnel and argues with the trestle.

In South Cheyenne Canyon, St. Peter's Dome dominates the scenery up ahead, and while all the passengers are exclaiming *oh!* and *ah!* you have a good chance to inspect the right of way from the rear platform. The track is, of course, standard gauge, made up of 75-pound rails, 60-pound on sidings. It is ballasted with decomposed rock and is well ditched to catch the runoff from upper slopes. According to the brakeman the railroad cost nearly four million dollars, including cars, locomotives, and the electric lines in the district. The track is a steady climb of four per cent for 20 miles out of Colorado Springs. The curves are sort of tough, too, being as sharp as 16 degrees.

A forest fire some years before cleared much of the sloping ridges of the larger trees. The loops, an engineering feature of the railroad, come soon after the train rounds St. Peter's Dome. These are not real loops of the spiral kind, but a sort of doubling back, pass-

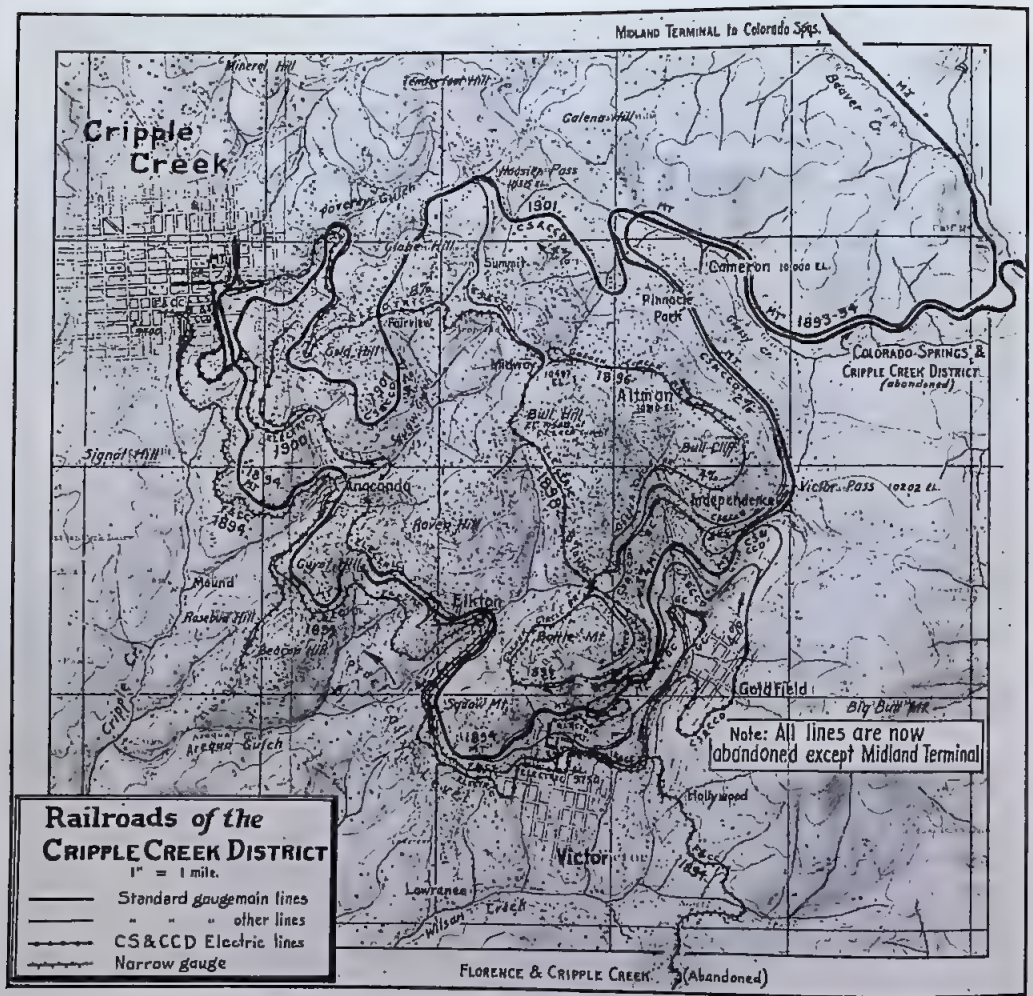
L. C. McClure.

ing through three tunnels and hairpinning again in the process.

While the engine takes a long drink at Duffields the passengers get out and stretch. Duffields is a shelter stop 3000 feet above the

Last view of Colorado Springs.

The last view of Colorado Springs on the Cripple Creek Short Line is from this point between Tunnel No. 8 and Duffields. The spur of St. Peter's Dome, in the foreground, is rounded by the lower level of track and the siding called St. Peter's.



Linn H. Westcott (U. S. G. S. topographic base).

L. C. McClure.

plains, which are here seen for the last time. Directly below is the line the train passed over scarcely a few minutes before. To the east is Cheyenne Mountain,* impressive, yet you can see right over it, and just north is the steep path to St. Peter's Dome.

Resuming its journey, the train meets an eastbound ore train at the Summit siding. Unlike most railroads the summit on the Shore Line is a misnomer, for the elevation is

* Will Rogers Memorial and a famous scenic drive are present-day features of Cheyenne Mountain.

The Cripple Creek District.

Railroads in the gold-mining district of Cripple Creek are a veritable maze of trackage. Most of the lines circle the southwest flanks of the hills (an ancient volcano core) between Cripple Creek and Victor. On the hilltops are the electric and steam main line of the Short Line, and the narrow-gauge Golden Circle which was later wide-gauged in parts. This map shows most of the trackage as it was about 1902, but some lines were already abandoned even then. Below, at far left, is Cripple Creek as seen from the east. In the distance is Mount Pisgah, scene of the first rush. Close observation will show the Midland Terminal's two-trestle wye in the center, and to the left, the tracks of the Short Line climbing the hill above Poverty Gulch. Not unlike the view from Hoosier Pass is the one at Beacon Hill, upper right, showing the Sangre de Cristo Range, the Arkansas, Oil Creek, and Cripple Creek valleys, and directly below, Gold Run. All that is left of the engine house at Cripple Creek is the concrete pit, right center. The cut and fill at the left are the main line and return forming a balloon loop (see map). From near the new courthouse one looks down the main street to the Midland Terminal Depot, lower left. White scars on the hill are the old Short Line and electric roadbeds. Lower right photo shows site of the mine at Anaconda; here the F&CC roadbed is now used for a highway.

Linn H. Westcott (except top, L. O. McClure).

9913 feet, yet Cripple Creek is nearly as high, and three passes on the Short Line are even higher than Summit. While the steady climbing stops here, the railroad does not descend the other side but overcomes a series of minor ridges from this stop onward.

The rock formations in Cathedral Park, some miles beyond, are gorgeous, and here is the ninth and last tunnel. The line swings across a beautiful alpine meadow on a small trestle, and the best view is from the rear platform.

Linn H. Westcott.

Just before Cameron the Midland Terminal's track swings along from the north; both lines enter a shallow valley and then double back the other side, crossing each other as they round the curve. The ME goes on to Victor Pass, as does a branch of the Short Line, but the CS&CCD main line makes another double loop and climbs to the true summit at Hoosier Pass, 10,315 feet above sea level.

Far off to the southwest are the snow-capped Sangre de Cristo Mountains, and nearer is the blue-tinged peneplain through which the Arkansas River cut a way for the Denver & Rio Grande's Royal Gorge Route. Nearly a thousand feet below lies the town of Cripple Creek, treeless since the great fire that swept the town a few years after its incorporation.

The railroad descends the hillside quickly around more hairpin loops. Below on the left, as the train comes to a stop at the depot, is the narrow-gauge Florence & Cripple Creek, and above is its brother, the Midland Terminal, which ends upon a peculiar wye, two legs of which are on trestles over Poverty Gulch. Even more unusual is the Short Line's terminal, for here engines and whole trains are turned on a balloon (Colorado name for a return loop). This particular loop has its neck at the terminal end. (See map, page 20.)

Cripple Creek is connected with Victor, where the biggest mines are located, by five railroad routes: the Florence & Cripple Creek (narrow gauge), the Midland Terminal's main line, the

John C. Carter Collection.

Linn H. Westcott.

two electric lines of the Short Line (one of which serves as an alternate steam route), and via Cameron over a branch of the Short Line. Besides these there are numerous branches and spur connections and the Golden Circle Railroad mentioned before. The trolley routes are favored for views and seeing mining operations close at hand, and are especially interesting since it is not necessary to return the same way.

The big mines are located near Victor and, had they been discovered first, Victor would have been the largest of the towns in the district. Here also is the messiest tangle of railroads short of Pittsburgh.

While back at Cripple Creek waiting for the returning train, you look over a couple of the locomotives. After all, it's 1902, and everyone, not just the railfan, is interested in locomotives. The railroad owns 12 in all, most of them Consolidations built by Schenectady in 1900. These engines have 22" x 26" cylinders, 51" drivers, 180 pounds steam pressure, 37,750 pounds tractive force, and 168,500 pounds on the drivers. Total weight with tender is 277,600 pounds. Four locomotives are 2-6-2 Prairie switchers, purchased to help in the construction of the road. They have 22" x 24" cylinders, 51" drivers; total weight with tender is 217,760 pounds. Besides these there are eight 57-horsepower electric coaches, three trailers, and 12 steam passenger cars.

Cripple Creek Today.

IT IS Summer of 1942. The right of way of the Cripple Creek Short Line was opened to the public as a highway two years ago. The trees along the way are now much recovered from the

Linn H. Westcott.

Good things come to an end.

Bear Creek is the last of the trestles; as this is published it may already look like the scene on the opposite page, site of the large trestle in North Cheyenne Canyon. When these pictures were taken the highway still crossed two of the trestles, ran around some by shoo-fly tactics, and still others had been filled in with earth like the one in Cathedral Park (below, right, and right center). The rocks in Cathedral Park are a particularly beautiful feature of the Short Line's route. They drape themselves over a pleasant alpine meadow (left center). As one travels westward the most to be remembered of the entire journey is likely to be the first good view of the plains at Point Sublime (lower left, opposite page). Far below are the buildings at Broadmoor, then just miles and miles of prairie reaching toward the east. What a place for a sunrise!

Linn H. Westcott.

John C. Carter Collectio

Linn H. Westcott.

L. C. McClure.

Linn H. Westcott.

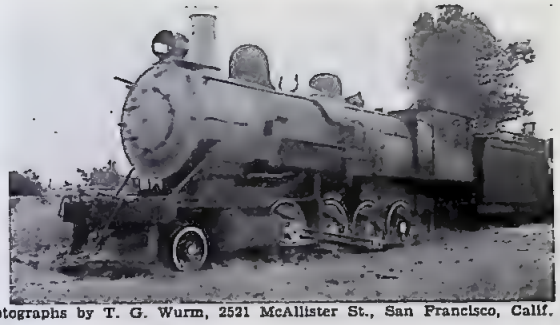
ancient fire and this route is one of the most scenic roads in all the Rockies. You can drive past the long-deserted Portland Mill, where the remaining locomotives stood knee-deep in mud for 20 years. You see the old weathered sign on Point Sublime. The great timber trestles are now gone, but the spring still trickles near Tunnel No. 1. Miners dig for their fortunes on Gold Hill, but the ties of the interurban line are chipped and railless. Many of the old mines are deserted too; one bears on its plank side a theater poster reading, "Gone With the Wind."

But the mines are producing plenty today. Since water was the miner's worst enemy, tunnels were cut to drain the

Eight memos.

Above are the remains of some of the Short Line's motive power. The 8-spot, directly above, was found by T. G. Wurm at Grants, N. M., where it had been retired from lumber service. The other engines were standing in the old abandoned yard near Portland Mill, also abandoned. They are, in order from left to right: No. 7, No. 8, No. 3 (one of the Prairies), and No. 2. Rumors have it that some of the rolling stock went to a narrow-gauge line in Montana. At left, Summit siding as it is now, and above, in 1902. The tunnel is No. 1, shown looking down the grade. On the opposite page is a contemporary view of one of the dailies about to rattle the Bear Creek trestle. According to M. C. Poor, the longest trestle was 491 feet and carried the track 84 feet above the canyon. Tunnel No. 4 was the longest bore, being 521 feet.

It is interesting to note that other projects to connect Cripple Creek with the outer world were proposed even after the completion of the Short Line. One was the Cripple Creek & Pueblo, which intended to build an electrified line to Pueblo using tunnels and heavy construction similar to CS&CCD. There was also a project called the Cripple Creek & Pikes Peak which wanted to build from Midway via Gillett and the south flank of Pikes Peak to Colorado Springs.



Locomotive photographs by T. G. Wurm, 2521 McAllister St., San Francisco, Calif.

mines at ever-lower levels, and last year the greatest draining project of all was completed, drying out many of the richest veins.

What happened to the railroads? The Midland Terminal is now the sole survivor. Since the peak of mining operations was in 1900, the Short Line got in on a good thing rather late. It did pay two dividends on its stock and a few years of interest on the bonds, but was not profitable for any of the later owners.

About 1910 business declined and three roads just couldn't all be profitable. The Colorado Springs & Cripple Creek was acquired by Colorado & Southern but operated separately by that Burlington subsidiary. Later it was leased by Florence & Cripple Creek, and all three lines were for a while under a related control. The F&CC was the first to go, probably because it was narrow gauge and the mill at Florence had no other important customers. Then, after some years of profitless operation, the Short Line entered receivership under the hand of the manager of the Portland Mill.

Operation was discontinued in 1918, resumed again for a while and permanently abandoned in 1920. A fellow named Corley scrapped the line two years later and for a long time it was a toll road known as the Corley Highway.

Today you can drive the Corley Highway through the nine tunnels and you can ride the Midland Terminal in a sort of doodlebug to Cripple Creek, both rides being even more interesting for knowing the Cripple Creek story.

John C. Carter collection.

The Twentieth Century

★ 40-year-old first-class extra-fare train has earned 150 million dollars for New York Central.

By A. C. Kalmbach.

"TICKETS for the *Twentieth Century Limited*—Today Only" reads the sign over ticket window No. 3 opposite the information booth in Grand Central Terminal. For one-half hour, from 5:30 to 6 p. m., when the train leaves for Chicago, this window will be selling only *Twentieth Century Limited* tickets and Pullman space so that no *Century* passenger need wait. It is only one of the many small touches which combine to make this one of the most famous trains, if not *the* most famous train, in the world.

"Twentieth Century Limited" was a most timely name June 15, 1902, when New York Central trains No. 25 and No. 26 made their first runs between New York and Chicago. The title has since become timeless, a synonym for luxurious railroad travel. In the business world "taking the *Century*" is now a figure of speech for "going to Chicago"—or New York.

In the 40 years of its operation the *Century* has set many a record, but by far its most outstanding achievement is that of earning a gross revenue of 150 million dollars, exclusive of dining-car receipts. The number of passengers is not phenomenal. Many a modern coach streamliner far exceeds the *Century*, whose record for number of passengers carried was established on Monday, January 7, 1929, when it ran eastbound in seven sections, bringing 822 passengers into Grand Central Terminal. But remember that each of these passengers was not only paying an extra fare, $10 at that time for the entire distance, but the *Century* was and is solid Pullman and, in fact, is now an all-room train. The *Twentieth Century* is not only first class but upper first class, and that's where the gross revenue comes from.

The traffic between Chicago and New York on the *Century* is about equally divided. The *Century* is strictly a limited train. Westbound No. 25 is posted in Grand Central Terminal as *"Twentieth Century Limited*—To Chicago." The only passenger stops are at Harmon, Albany, Syracuse and Buffalo, and these only to pick up passengers for Chicago. Eastbound No. 26 makes one concession. It will discharge passengers at Albany and also stops

Courtesy New York Central.

at Toledo only to pick up passengers. With such a strictly limited business, both as to number of passenger stops and class of passengers, the *Twentieth Century* has handled more than 200,000 people in a single year and earned a gross of more than 10 million dollars in a year.

The name was coined by George H. Daniels, who was general passenger agent of the New York Central in 1902. It was Daniels, likewise, who created the *Empire State Express* [Nov. '41 TRAINS]. The name for the *Century* was picked on the basis that the train was the forerunner of a new era in high-speed transportation by rail. Actually it was preceded in experimentation by the Central's *Exposition Flyer,* which ran during the Summer of 1893 between New York City and Chicago at the time of the Columbian Exposition in Chicago. Express-train speed between Chicago and New York before the *Century* was 24 hours. The *Century* cut this to 20 hours, later 18 hours, and now 16 hours, an average of an even mile a minute for the 960 miles.

On the maiden trips the equipment of each train consisted of three Pullmans, a diner, and a combined mail-buffet car, pulled by an Atlantic-type locomotive of the 2900 class. The engines cost between $15,000 and $16,000 each, and the entire rolling equipment in service on a *Century* train in early years represented a cost of about $115,000.

Twenty years later the equipment consisted of a combination club car with a barber, valet and stenographer (these three classes of employees are on the train today); a 10-compartment sleeping car; two sleeping cars, each with seven compartments and two drawing rooms; four sleeping cars with 12 sections, a compartment and a drawing room each; and a sleeping car with 12 sections and a drawing room. Each section of the train carried two diners. Such a train with locomotive represented an investment in rolling stock

Century consist.

A typical consist of the *Twentieth Century* is:

1st car—Mail-baggage.

2nd car—Lounge.

3rd car—Roomette (17 roomettes).

4th car—Roomette (17 roomettes).

5th car—10 roomettes and 5 double bedrooms.

6th car—4 double bedrooms, 4 compartments and 2 drawing rooms.

7th car—Dining.

8th car—Dining.

9th car—4 double bedrooms, 4 compartments and 2 drawing rooms.

10th car—10 roomettes and 5 double bedrooms.

11th car—13 double bedrooms.

12th car—4 double bedrooms, 4 compartments and 2 drawing rooms.

13th car—Observation.

The *Century,* then and now.

The unusual rear-end view is the *Twentieth Century Limited* of today, practically an ocean liner on wheels, while below is the train on its first run, June 15, 1902. The older photo was taken on the left-hand-operated Lake Shore & Michigan Southern, now the west end of the Central main line.

Courtesy New York Central.

and motive power of approximately $250,000. The Pacific-type locomotive was used exclusively. This type of locomotive cost some $59,000, or almost four times the cost of the Atlantic type originally used and more than half of the cost of the entire train for the first trip. The Pullmans were much larger than the original cars of 1902 and since December, 1910, had been all-steel construction. The dining cars were likewise changed to all-steel construction in November of 1912.

Today each 16-car section of the *Century*, including its locomotive, represents an investment by the New York Central and the Pullman Company of $1,384,000. The modern streamlined train went into service June 15, 1938. The locomotives are picked from the 10 streamlined Hudsons, part of the large fleet of 4-6-4 engines which pull the major part of the Central's passenger service. Each locomotive represents an investment of more than the entire *Twentieth Century Limited* of 40 years ago.

It was with the inauguration of the streamlined equipment that the *Century* became an all-room train. Gone are the old open sections with their upper and lower berths, and in their places are roomettes, together with vastly improved compartments, drawing rooms, bedrooms, and a new and luxurious deluxe suite of drawing room, bedroom, and shower bath. The dining cars are no longer the old formal arrangement of tables in two rows. Instead, the seating arrangements are flexible, so that an individual can be seated alone, or so parties of two to five can be seated together. Some tables are placed side by side, facing into the diner, while others are set before curved settees in diagonally opposite corners. A phonograph provides an agreeable background of light music during dinner, and in the evening, with changed lighting and table tops, the music likewise changes to popular orchestras and the dining car becomes a night club.

With recent speed-ups in railroad passenger transportation, public curiosity as to this speed has increased, and the observation car of the *Century* is now provided with a speedometer and odometer. Among the novel decorations are large maps in color and scale locomotive models of the *DeWitt Clinton*, first train operated in New York State, and the famous *"999"* locomotive, which set a world speed record of 112.5 miles per hour on May 10, 1893.

The mail-baggage cars have a 60-foot space for railroad postoffice use. The *Century* has long been one of the chief media for transporting first-class mail between New York and Chicago.

Locomotives are changed twice during the *Century's* run. Once is the exchange of steam and electric locomotives at Harmon, only 32.7 miles outside of Grand Central Terminal. The other change is to relieve the steam locomotive at Collinwood, East Cleveland, approximately the midpoint of the journey. Crews, of course, change more often. The enginemen and firemen change at the following division ends: Harmon, Albany, Syracuse, Rochester, Buffalo, Cleveland, Toledo, Elkhart. The divisions traversed, reading from New York City to Chicago, are: Elec-

Famous pictures.

Probably the most famous of all railroad calendar pictures is the painting, "The *Centuries* Pass in the Night," one of the old New York Central calendar series. A black and white reproduction can hardly do more than hint at the realistic punch of the colored original, reflecting all the flavor of two limiteds passing with the brakeman on the open observation platform inspecting the other train. The *Century* was also the feature in the most reproduced of all railroad photographs, that of 5271 and train on the next page.

Courtesy New York Central.

tric, Hudson, Mohawk, Syracuse, Rochester, Buffalo, Erie, Cleveland, Toledo, Western.

The Pullman conductor makes the entire trip, as do the Pullman porters, the dining car crews, the bar men, train secretary, barber and maid. The railroad company's train crew, including conductors, brakemen, and baggagemen, change at Buffalo and Toledo.

To man each *Century* the following crew is required: nine enginemen and nine firemen, three conductors and six brakemen, one Pullman conductor, three baggagemen, one train secretary, one barber, one maid, one valet, two bar men, six or more Pullman porters, and 24 men in the two diners, including two stewards, two chefs, six cooks and 14 waiters. All of these men are chosen especially for *Century* service, and in each respective field a *Century* assignment represents the aristocracy of New York Central's service.

The *Century's* most famous engineman was Bob Butterfield, now retired. He made many remarkable runs that earned the sobriquet of "On-Time Bob." More stories in newspapers and magazines have been written about Bob Butterfield than any other engineman during the past 20 years. He is ready for wartime service, if called, although he is now 75.

The estimated mileage since the start of the service is 47,576,000 miles. With all these miles and with 40 years of history the *Twentieth Century Limited* was discontinued only once, for 10 days from December 10 to December 20, 1919, because of the coal shortage following the first World War.

Before it was streamlined many a railfan said of the *Century,* "She looks just like any other train." Even with her distinctive styling she is to all outward appearances not so unusual among the many streamliners of today, but upon this one limited the New York Central has lavished the best of its loving care. To the men along the line Nos. 25 and 26 are practically a religion. The Pullman porters are, if anything, more courteous, the dining car waiters and stewards more attentive. Even the station porters snap to respectful attention when you offer them baggage for the *Century.* Truly, a ride on this train is an Experience.

Courtesy New York Central.

Nation's Crossroads

★ 18 trunk railroads serve St. Louis, the second most important rail center in North America.

By Harold M. Mayer.

METROPOLITAN St. Louis, second most important railroad center in North America, stands at the crossroads of the nation. Situated at the southwestern corner of the manufacturing belt which extends from New England to the Mississippi River, and near the geographical center of the Mississippi Valley with its tremendous production of grain and other agricultural products, St. Louis originates, terminates, and interchanges a great volume of east-west rail traffic, manufactures for the most part moving west and agricultural products east. Likewise, it is situated at an important point of concentration for north-south traffic, because it is the gateway between the agricultural South and Southwest, and the industrial North and Northeast. Furthermore, it is on the greatest inland waterway of the continent, and it developed early as an important river port. A combination of geographical location and early commercial development was responsible for the early attraction of St. Louis for the pioneer Western railroads, later responsible for its greatest growth.

Today, the metropolitan area is served by 18 trunk lines, a number of switching and terminal railroads, by over 60 yards, nearly 1500 miles of track, by one of the world's largest passenger terminals, and by a number of spectacular railroad bridges over the Mississippi and the Missouri, which converge at the northern edge of the area.

The railroads do not, in general, approach the city on a series of radiating tangents, as at Chicago and Indianapolis. The pattern of rail approaches is closely related to the topography, bedrock and soil conditions, which are rather complex in portions of the area.

St. Louis is what has been called a bi-cored metropolis; that is, it has developed as two separate cities, each with a commercial center, and each with somewhat different characteristics and functions. The Mississippi River separates these two cores, the downtown sections of St. Louis and East St. Louis, from each other. Throughout the entire development of railroads in the region, the Mississippi has been a barrier to free interchange of traffic between the two parts of the metropolis, and, even yet, its influence is clearly evident in the present railroad pattern and in the rate structure. It was, in fact, this very barrier that gave the St. Louis area its *raison d'etre.*

St. Louis, originally a river port, developed at its present location largely because it was near the confluence of the Mississippi and Missouri, down which the early French fur-traders floated their purchases en route to New Orleans and the sea, thereby avoiding the English territory east of the river. The site of St. Louis was the nearest place from the joining of the rivers which offered a solid foundation for a trading post and settlement, free from floods. St. Louis looked to the river, its commercial life-line. Not until the coming of the railroads, in the fifties, was the city free to expand westward from the river bank, to which it was firmly anchored commercially.

East St. Louis, in sharp contrast to its larger twin across the river, is distinctly a product of the railroad. Its early develop-

Union Station

Looking toward the giant 32-track shed of St. Louis Union Station from the southwest, the view is across the approach tracks and the fan of tracks toward the 10-track addition to the west of the original station. This addition with its umbrella sheds brings station tracks to 42. At right is one of the wyes.

ment began when the railroads, extending their lines westward, found themselves opposite St. Louis, but confronted by the seemingly insurmountable barrier of the big river. The first of the Eastern railroads, the Ohio & Mississippi, now a part of the Baltimore & Ohio, reached the river opposite St. Louis in 1857, and in the next few years a number of others reached the same point. Meanwhile, the Pacific Railroad of Missouri, which later became the Missouri Pacific, was building westward from St. Louis. Many miles north of that city the Mississippi was bridged by rails, first at Rock Island in 1854, and, soon after, at Clinton and other points. But not until 1874, when Eads completed his famous bridge, was East St. Louis connected with its metropolis on the west bank by other than ferries. In pre-railroad days the very lifeblood of the area, the Mississippi River later became the greatest natural barrier to coordinated development and free interchange of traffic within the metropolitan area. The railroad approach routes to St. Louis were adjusted to the river and its valley.

At St. Louis, the Mississippi is in a level flood-plain about 10 miles in width. This plain is very swampy, and was developed as the result of the meandering and erosion of the river, which undercut the limestone bluffs on each side, thereby widening the valley. About 15 miles north of downtown St. Louis, the Missouri River enters the Mississippi from the west through a large delta-like deposit of silt, forcing the Mississippi away from the west valley bluffs. The river at St. Louis, however, runs alongside a solid rock barrier, one of the limestone formations which form the foothills of the Ozarks. The descent to the river bank at St. Louis, therefore, is relatively steep. The limestone offers a solid footing for bridges.

Wayne Leeman, 1033 Bompart Ave., Webster Groves, Mo.; courtesy MP.

The flood plain at St. Louis is entirely to the east of the river. Here known as the "American Bottoms," it is one of the most intensively built-up areas of railroad trackage, yards, and terminals in the entire world.

The eastern edge of the American Bottoms, 10 miles and more back from the river, is marked by a sharp, steep bluff, from 100 to 200 feet in height, overlooking the lowland to the west. The upland back of the bluffs is interrupted by the narrow, winding valleys of small creeks and tributaries of the Mississippi, up which the railroads snake in order to reduce their grades in climbing from the Mississippi flood-plain to the Illinois prairies on the upland. Nearly every creek which has cut such ravines and valleys in the bluffs is followed by one or more railroads, or by the grade of an abandoned interurban line. Tangent track for miles on the Illinois uplands, and more miles of tangent on the American Bottoms, are connected, in the case of nearly all the railroads which approach St. Louis from the east, northeast and southeast, by a mile or more of sharp curves and fairly steep grades where the right of way is perched on a shelf or embankment along the side of a narrow ravine. The Illinois Central's line from Chicago, for example, reaches the bottoms through Glen Carbon, named from the outcrops of coal which occur on the valley sides.

The railroads reach the Mississippi at a point as close as possible to the commercial center of St. Louis: the east bank of the river at the end of Eads Bridge. Because there are no topographic features other than a few oxbow lakes in the bottoms, the rights of way, from the outlets of their valley approaches, head directly to this focus at the bridgehead. In this vicinity huge freight yards, team tracks, and terminals have been constructed. The pattern of trunk lines across the bottom lands resembles a fan radiating from this point. It was the concentration of railroads here at the bridgehead (formerly a ferry landing) which was largely responsible for the present location of East St. Louis.

The railroads on the bottom lands are elevated above their surroundings on long embankments which serve the dual purpose of protecting the tracks from flood and of preventing the flood waters from inundating the land behind the tracks. This protection is indeed necessary, as many heavy industries,

Trains' map of the railroads of

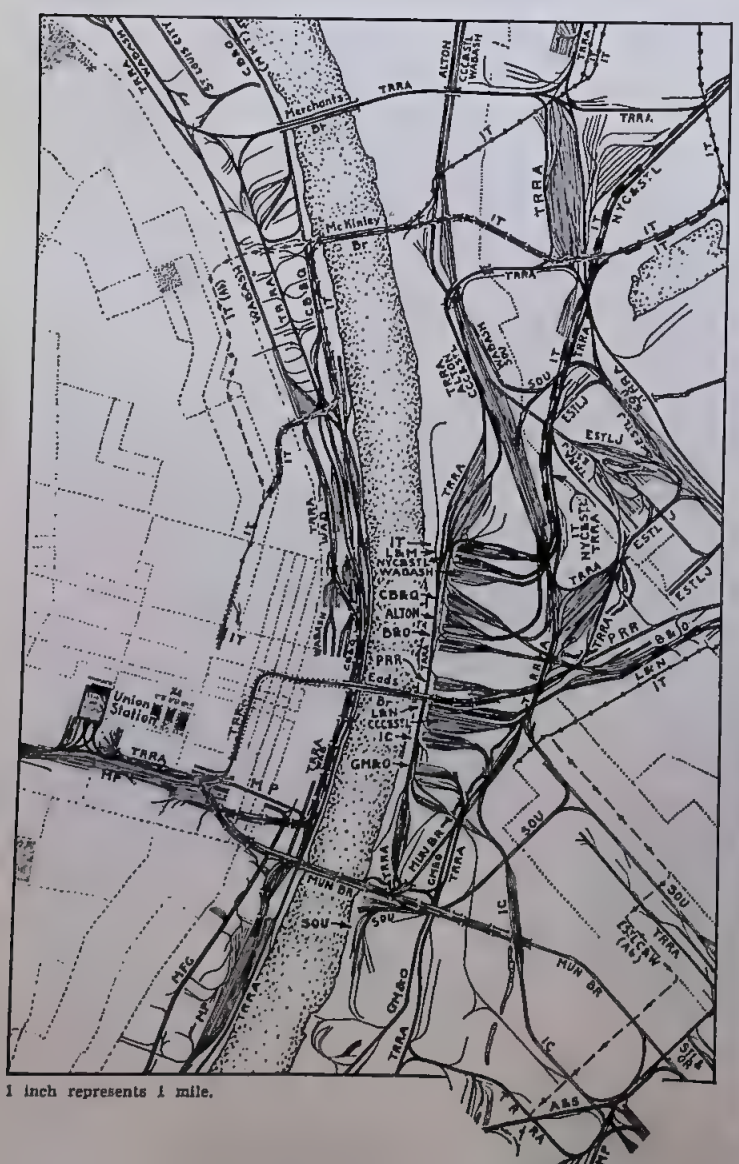
St. Louis and Vicinity

The first railroads to St. Louis came from the east and stopped at the levee on the east shore of the Mississippi, opposite the growing town. As more railroads came they pulled up alongside as though waiting at a cab stand, until now the bank has the stub terminals of no less than 15 different companies. When the Pacific Railroad of Missouri was built in an attempt to become the first transcontinental railroad, cars were ferried across on barges—a method used even today.

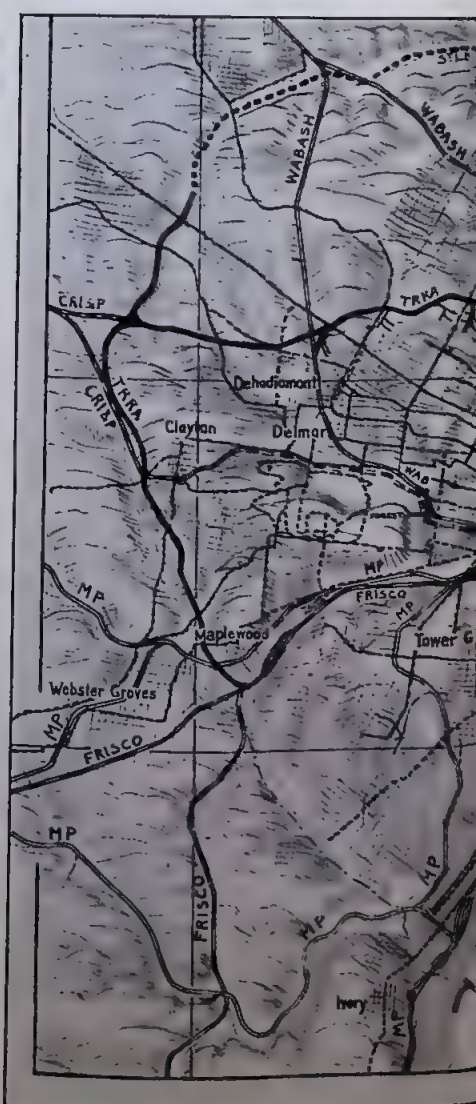
But things changed when the Eads Bridge made the first physical connection into the city. St. Louis became not so much a river port, but more a railroad center. Now, if you include the Missouri-Illinois bridge at Alton, there are five crossings, the most recent being the Municipal Bridge.

On this map, each railroad route is coded to facilitate the tracing of lines into the mad jumble. Company initials are indicated along multiple tracks in the order of their use, and names in parentheses operate by trackage rights. (On the Terminal Railroad Association line so many railroads operate that trackage has not been indicated.)

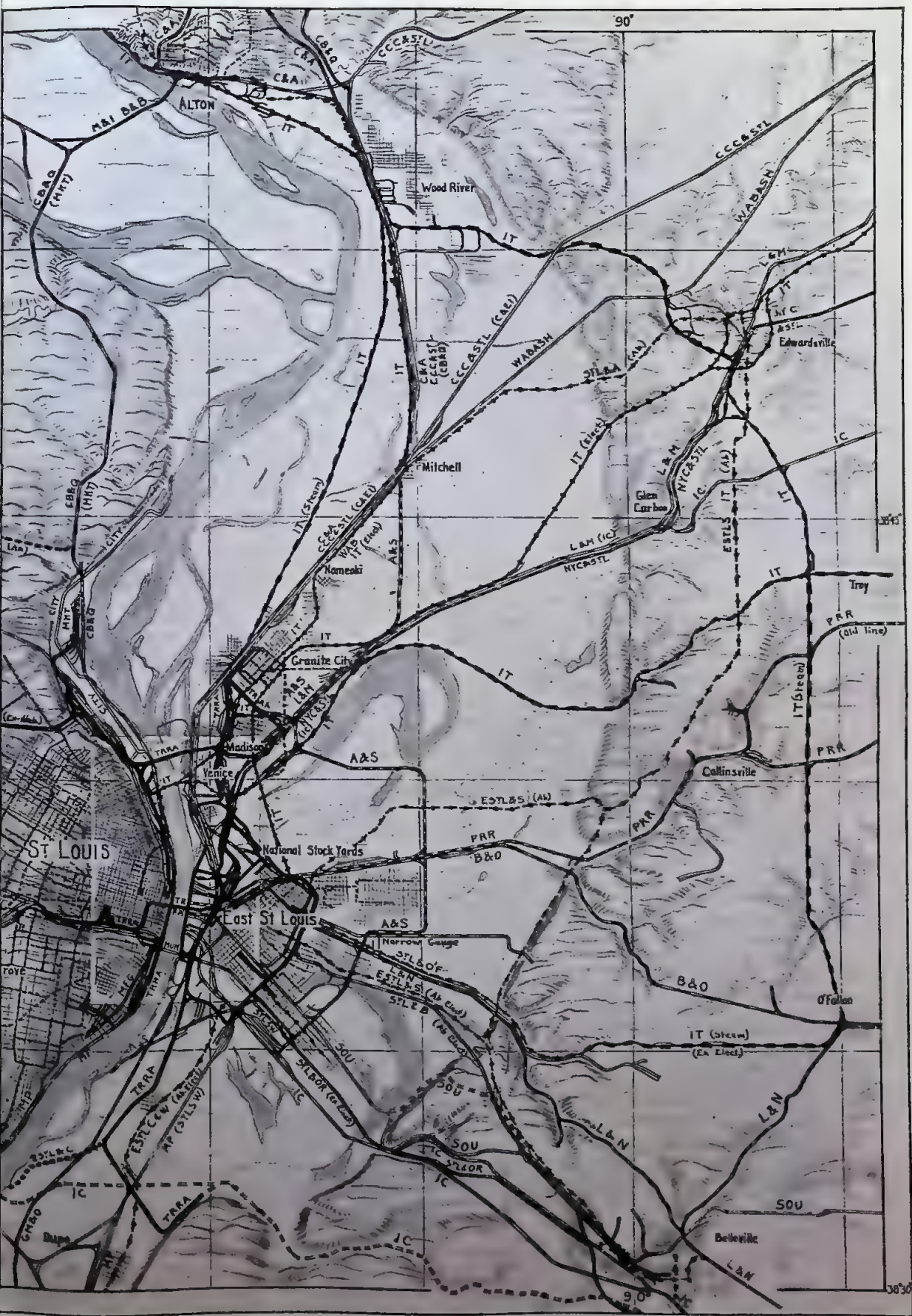
The Illinois Terminal line nearest the river was once the main line of the now-defunct Chicago, Peoria & St. Louis. By acquiring this and other obsolete properties, and by constructing a belt line from Alton to O'Fallon, IT has become important in the local and interchange switching field along with the TRRA, Alton & Southern, Southern, and the East St. Louis Junction line. See article, September 1941 TRAINS.



1 inch represents 1 mile.



1 inch represents 3 miles.



Linn H. Wescott.

P. R. Papin Photo Co., St. Louis; courtesy Terminal Railroad Association of St. Louis.

attracted by the large areas of level land and the excellent railroad connections, have moved into the bottoms, making the area one of the major centers of industry in the United States. Oil refineries, chemical plants, steel mills and foundries alternate with stockyards, freight houses, classification yards, roundhouses, and an intricate maze of railroad tracks in every direction.

The railroads on the American Bottoms around East St. Louis are interconnected by a series of belt lines, some of which have been unified under the control of the Terminal Railroad Association of St. Louis. Others are subsidiaries of the trunk lines, and there are a number of lines which, although common carriers, are operated primarily to serve the plants of the industrial corporations which own them. Most important of these is the Alton & Southern, which interchanges with barges and trunk lines on the east and with the lines on the west of the Mississippi by means of operating rights over the Municipal Bridge, besides serving many local sidetracks and spurs.

West of the Mississippi there is little level land suitable for the development of heavy industries or railroad yards. Consequently the railroad approaches from the west, southwest and northwest are by devious routes with considerable curvature, and, not infrequently, by moderately heavy grades. The small areas of level, low-lying land are utilized to the utmost by railroad yards, freight and passenger terminals, team tracks, and other terminal facilities. There is little of the heavy type of industry which requires large receipts of raw materials. Consequently, there has been but little competition for the use of the lower land and the tributary valleys for railroad purposes.

A mile south of Eads Bridge, and immediately south of the commercial center of St. Louis, is the valley of Mill Creek, occupied by numerous freight stations and by the Union Station. One would look in vain for Mill Creek; it has for many years been encased in a large sewer under the valley floor, thereby permitting the entire width of this broad, shallow valley to be used for tracks, freight sheds, team tracks, warehouses and coach yards. The city streets are carried over the valley on long viaducts, giving the railroads uninterrupted use of the land.

The extensive areas of terminal facilities in Mill Creek Valley are completely surrounded by land intensively used for commercial and residential purposes. The position of the railroads in the center of St. Louis is in marked contrast to that of the railroads in most other large cities, where they are forced to approach their downtown terminals over narrow rights of way, with few tracks, and with the auxiliary facilities, such as coach yards and roundhouses, a considerable distance from the depots. At St. Louis the passenger engine terminals and the coach yards are a stone's throw from the Union Station. The explanation of this is an unusual circumstance that permitted the city to grow around, and nearly enclose, the valley. August Chouteau, one of the early set-

Eads Bridge, first at St. Louis.

Completed July 4, 1874, the Eads Bridge ranks high in the development of railroads on this continent. It furnished the first physical connection between the railroads of East and West at an important point of traffic concentration. It is well named after its projector and consulting engineer, who overcame unusual obstacles both in financing and in public skepticism.

tlers, constructed a dam across Mill Creek at Seventh Street in what is now downtown St. Louis. The reservoir back of the dam was a dominant feature of the city's landscape for many years. The creek deposited its silt, building up a flat, broad floor of alluvium at the bottom of the reservoir. But as the city grew, the stagnant water and unused space became objectionable. The dam was removed, the reservoir drained, and the creek put into an underground aqueduct, just in time to give the Missouri Pacific and the Frisco, which were building into St. Louis, a made-to-order terminal site right in the heart of the city—broad, level, and large enough to serve them well for many years to come. Their needs have been very well served by this location, as, indeed, have the needs of all the many railroads which use the huge St. Louis Union Depot. This terminal, completed in 1894, is one of the largest, and certainly one of the most spectacular, in the world. It was built as a stub at right angles to and on the north side of the valley. Because of this orientation at right angles to the valley through which trains come from both east and west, a huge multi-tracked wye, elaborately interlocked, has been constructed. It is, in fact, two wyes which overlap. From the throat of each radiate the station tracks, all on the same level, terminating in a huge trainshed which spans 32 of the 42 tracks.

Not all of the railroad facilities of the St. Louis area west of the Mississippi, however, are concentrated in the valley of Mill Creek. The west shore of the Mississippi itself is intensively utilized by the railroads, both north and south from the outlet of Mill Creek Valley. In the northern part of the city there is a large flat area of bottom land, somewhat resembling the American Bottoms in its general characteristics, which is used by several of the railroads in their approach from the north and northwest. Most prominent among these is the Mississippi River line of the Burlington. The Katy, likewise, uses this route to reach from St. Louis to the Missouri River, the valley of which it follows westward. A number of railroads from the northeast, particularly the four which link St. Louis with

Missouri Pacific leaving station.

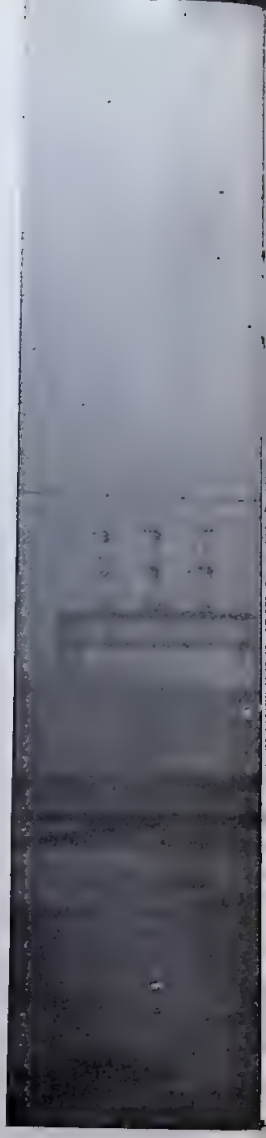
Shortly after leaving the St. Louis Union Station a Missouri Pacific passenger train swings southwestward toward Webster Groves, Kirkwood and other suburban points. To right is Wabash main.

Wayne Leeman; courtesy Missouri Pacific.

Chicago, used, until last year, the northern part of the St. Louis waterfront as an entrance to the city from the Merchants Bridge, which spans the Mississippi two miles north of Eads Bridge.

Like a cordon around the central business district of the city, the terminal elevated structure stands out as an important feature of the landscape. This double-tracked elevated railroad route furnishes the entrance to St. Louis for the railroads which still cross the Merchants Bridge, and also for those which approach the city from the north. Descending from the west end of Merchants Bridge, the passenger trains of the Alton, C&EI, and Big Four join the Burlington and Katy by means of a long, curved-approach viaduct, passing a number of freight houses and warehouses, and entering the elevated structure just north of Eads Bridge. The elevated passes underneath one of the masonry arches which form the west abutment of Eads Bridge, at which point most of the trains pause momentarily at Washington Avenue, the nearest station to the shopping district, which is located at the western bridgehead. Continuing southward for another mile, the elevated line then swings westward and descends into Mill Creek Valley, thereby reaching Union Station. The elevated line was constructed at the upper edge of the levee so that the two passenger tracks could always be above the highest flood stages of the river. The historic railroad route is to be dismantled to make way for a riverfront park, and most of the trains which have been using it have been or will be rerouted to other lines of approach to Union Station.

South of the outlet of Mill Creek Valley, the railroad occupance of the St. Louis waterfront was handicapped by more serious topographic conditions. This portion of the city is served by the St. Louis, Iron Mountain & Southern, now a part of the Missouri Pacific. The road was originally constructed to serve as a carrier of iron ore into St. Louis from the Ste. Francois Mountains of southern Missouri. Abandoned blast furnaces and ore bridges are now conspicuous in the southern part of St. Louis. But the old Iron Mountain railroad is still an important carrier of freight to the many districts on the waterfront. An important yard at Ivory, just south of the city limits, serves as the classification point from which transfer trains are operated to the industries on the waterfront, and to the connection with the lines in the Mill Creek Valley. A car transfer ferry from Ivory until recently connected the Missouri Pacific's lines on the two sides of the Mississippi River, thereby by-passing some freight off the congested bridges. Directly across the Mississippi from Ivory is the Dupo yard of the Missouri Pacific.



Night at station.

Around one of the Union Station wyes swings a light Pennsylvania locomotive. In the background looms the huge 32-track trainshed, a long, low curve. Lower down and to the left are the lights on the extended platforms of the newer 10-track addition to the station. The three-position lower-quadrant semaphores, part of the original 1894 electropneumatic signaling installation, have recently been replaced with searchlight signals.

The river, in the southern part of St. Louis, has cut a precipitous bluff into the limestone bedrock, and the railroad occupies a narrow shelf near the water's edge. Sidings lead to the important industries wherever slightly wider space between the bluffs and the river enabled industries to find sites. One of the major plants in this area, a famous brewery, operates a short switching line, the Manufacturers Railway.

Entering the Mississippi at the southern end of St. Louis is another naturally provided railroad route, that of the River Des Peres. This river meanders from the Missouri upland west of the city, where it is bifurcated. The drainage of its east branch is separated from that of Mill Creek by a low divide about three miles west of the Union Station. Over this divide are the routes of the Missouri Pacific and the Frisco from the west. Westward from Mill Creek Valley, these two railroads descend the east branch of the Des

Wayne Leeman; courtesy Missouri Pacific.

Peres on closely parallel routes, the MoP in the valley bottom and the Frisco perched on a shelf in the south wall of the valley. The westward-descending grade has been utilized by the latter road in the operation of a freight yard in which classification is done by gravity down the natural grade of the valley. Both roads, in the divide which separates the River Des Peres from Mill Creek, maintain passenger stations. These, the Tower Grove stations, give these roads an edge in the competition for passenger traffic to and from the prosperous residential sections on the west side of St. Louis. The Missouri Pacific, partly in order to take advantage of this west-side traffic, and partly to avoid the crowded conditions along its main waterfront route through south St. Louis, has constructed the Oak Hill Cutoff from Tower Grove to Carondelet. Over this cutoff the passenger trains to the south and southwest are routed.

The Frisco, because of its position high on the valley wall, enters the Missouri upland directly west of St. Louis, and has a very small amount of curvature. The Missouri Pacific, on the other hand, following the bottom of the River Des Peres Valley, pursues a circuitous route. It serves a number of the finest suburbs of the metropolitan area, which owe their importance to the rugged slopes of the small valleys in the vicinity and to the early provision of suburban service by the Missouri Pacific.

The Missouri Pacific shares its traffic to and from the west with a number of other

roads, not the least important of which is the Wabash. Entering St. Louis from the northwest, the stream of Wabash traffic from Kansas City and Omaha is joined, near the western city limits, by the stream of passenger trains to and from Chicago and Detroit. This unusual situation of trains from the east entering the city from the west is explained by the competitive advantage furnished to the Wabash by its Delmar passenger station, admirably located close to the leading residential districts on the west side of the city. The trains from the east cross the Mississippi on Merchants Bridge, but, instead of running south to the Union Station over the waterfront elevated line, operate northward along the Mississippi and then west to the Wabash main line over a double-tracked section of the Terminal Railroad, through what is known as the northwest factory district. This connecting line was constructed primarily to give the Western railroads direct access to the St. Louis waterfront industries and to the river crossings without necessity of movement through congested Mill Creek Valley.

The Mississippi River, as has been stated, is the outstanding barrier to free interchange of traffic between all portions of the metropolitan area, and between East and West. When Eads Bridge was opened in 1874, it was one of the wonders of the world. It carries a double-track line from East St. Louis over the river and into the portal of a long tunnel under the commercial core of St. Louis, opening into the yards of the Union Station. In later years additional river crossings were provided by the Merchants Bridge and by the McKinley Bridge, the latter used exclusively by the electric trains of the Illinois Terminal Railroad, which operate in a tunnel under St. Louis to a modern terminal in the heart of the business center of the city. But the greatest railroad traffic, until very recently, continued to move across Eads Bridge into the Union Station.

Now a new major river crossing is utilized. The Municipal, or Free, Bridge (for which a toll is charged!), erected in 1912 and used for transfer freight, was recently double-tracked to relieve the load on Eads Bridge and to provide for the rerouting of some of the trains as the result of the planned demolition of the waterfront elevated line. The double-tracking of the bridge, with its mile-long trestle approach over the bottom lands on the east, was not difficult, because provision had been made for it in the original design of the bridge. It now provides easy access, without sharp curvature, directly into the mouth of Mill Creek Valley and hence to Union Station. A number of the Eastern roads, notably the Pennsylvania, now are provided with a more direct route, without the necessity of stopping to change to lighter engines as was necessary on the Eads route.

One railroad which reaches St. Louis along the east side of the river, the new Gulf, Mobile & Ohio, solved its terminal problem by the expedient of not running its trains into St. Louis at all, but by substituting a bus connection from a modern terminal in East St. Louis.

In spite of all the efforts to overcome the handicap of a mighty river which separates the metropolitan area into two parts, the division between East and West is still very real, in the switching and terminal arrangements, in wheelage and other charges on the bridges, in the break at the Mississippi between Western and Official Classification territories, and in the general rate structure. Yet, with all of these handicaps, St. Louis very nearly approaches the ideal in its organization of terminal facilities. Almost every industry and every railroad is accessible from almost every other over a single system of belt and switching lines: that of the Terminal Railroad Association of St. Louis, a Class 1 railroad owned jointly by all of the road-haul carriers which enter the St. Louis area. It operates almost 400 miles of track and handles over a million carloads of freight per year, over property representing an investment of 40 million dollars. It operates practically all of the switching and terminal facilities on the west side of the Mississippi River, and the greater part of the facilities on the east side. Among its properties are the Union Station, trackage on the Municipal Bridge, the Eads and Merchants bridges, the waterfront elevated line, and inner, middle and outer belt lines on each side of the river.

With a strategic location at the crossroads of east-west and north-south traffic, at a natural interchange point, with several large trans-Mississippi bridges, with hundreds of industries served by one of the largest switching and terminal organizations in the world, St. Louis is well identified as an outstanding railroad center.

Top, Nansen-Oakes-Barham, 6022 Hartford, St. Louis; bottom, Wayne Leeman, courtesy Missouri Pacific.

Trains leaving St. Louis and East St. Louis.

The young and frisky Gulf, Mobile & Ohio decided that use of the St. Louis Union Station was too expensive, and built its own small but modern terminal in East St. Louis. Passengers are transferred to St. Louis business or shopping areas or to the Union Station by bus. The train is the new streamlined *New Orleans Rebel*, waiting for the start of her maiden trip last Easter Sunday. Lower picture is one of Missouri Pacific's attractive Mountain-type locomotives [see "Missouri Pacific Locomotives," May TRAINS] leaving the Union Station with a through train.

Moody collection.

Working the main.

The two-foot-gauge Wiscasset, Waterville & Farmington Railway purchased No. 6 from the Baldwin Locomotive Works in 1907. In this picture it is puffing along near North Whitefield, Me., in 1912. No. 6 was an outside-frame Prairie-type locomotive used for freight service only. A 2-6-2 with 33-inch drivers and 12" x 16" cylinders, it operated at a boiler pressure of 180 pounds.

The Maine Two-Footers

★ Five separate railroads made a 214-mile empire of two-foot gauge only a few years ago.

By Joseph Carter O'Hearn.

HAD state nicknames come from industry rather than nature, Maine would most probably be known as the "Two-Footer" state. Maine has not lost anything by being called the Pine Tree State, but neither has its fame been lessened by the fact that it once was the center of activity for numerous two-foot-gauge railroads. Of the 10 railroad systems in this country constructed with rails 24 inches apart, five were in Maine. The remaining five were built in New Mexico, North Carolina, Colorado, Pennsylvania and Massachusetts. The first two-foot-gauge railroad, recognized as a railroad because it was a common carrier and so chartered, was the Billerica & Bedford in Massachusetts. The story of this little nine-mile line is also the story of the one man responsible for the existence of the two-footers of Maine.

George E. Mansfield of Massachusetts visited Wales, England, in the early 1870's. There he saw a little double-end Fairlie engine operate on a 23½-inch-gauge line. He rode behind the engine as a passenger on the Festiniog Railway and as he rode he observed, made notes and asked questions. He became convinced that the operation of a railroad with so narrow a gauge was both practical and safe. Returning to America, he decided to prove to railroad men, some of whom considered six feet none too wide, that a two-foot gauge was equally as safe.

George Mansfield did not waste time with words and plans. Instead, he built an experi-

mental railway. It was only a third of a mile long and started from atop a small hill in back of the Providence Railroad station in Hazelwood, Mass., Mansfield's home town. Winding around the hill in series of curves, the line shot across Mansfield's back yard, turned sharply to cross a street at an angle, skimmed a corner, and crossed a bridge to another street, where it then paralleled the tracks of the standard-gauge Providence Railroad. Started in the Spring and finished by late Summer of 1875, this little 10-inch-gauge line had only one piece of rolling stock, which traveled by gravity in one direction, by hand in the other.

Toward the latter part of 1875 Mansfield traveled to Billerica, where news of a proposed nine-mile standard-gauge railroad had originated. At least that was what was talked of before Mansfield's arrival. He presented facts and figures drawn from his own experiments, and on May 10, 1876, a charter was granted to the Billerica & Bedford Railroad to construct a line from Bedford to North Billerica. On that day the first two-foot-gauge common-carrier railroad in America came to life.

Construction on the B&B started on September 6, 1876. Soon two locomotives of the Forney type were delivered from the Hinkley Locomotive Works of Boston. A radical departure from locomotive operating practices of the time resulted from design changes engineered by F. D. Childs. The pilots and headlights were built on the rear of the tank and the locomotives were run backward. Comment and then criticism welled from all sides, even from the manufacturer, who claimed that the engines would not operate correctly in reverse at road speeds. Mansfield promptly squelched the uproar by pointing out the distinct advantages obtained in so operating the equipment. He showed that the crew had a clear view of the track at all times; that during hot weather smoke was blown out of the cab; that the engine stacks were brought so close to the first passenger car behind the engine that cinders, sparks and smoke were blown over the roofs instead of being sucked into the cars.

The Billerica & Bedford, if not a financial success, was most certainly a popular railroad. People came from all over the country to see and ride it. One of the visitors was S. P. Cashman of Maine. While on vacation in Massachusetts he saw the B&B, rode it, and returned to Maine with the full conviction that what was needed back home in North Franklin was a two-foot-gauge railroad. He did considerable talking which resulted in one Samuel Farmer paying a visit to George Mansfield. Both men returned to Maine in March of 1878 and Mansfield spoke to groups in Rangeley, Philips, Madrid and Strong. His comments and proposals were

Moody collection.

Two-foot parlor car.

The *Rangeley*, built in 1901, was just as grand as any other parlor car, but smaller, and seated 26 persons.

received enthusiastically, and on April 29, 1878, the Sandy River Valley Railroad Company was formed. Its purpose was to construct a two-foot-gauge railroad from a connection with the Maine Central at Farmington to Strong. If this line proved successful it was to be continued into Phillips.

Financial arrangements were not completed until April 8, 1879, at which time a board of directors was elected and the name changed to the Sandy River Railroad Company. It was about this time that rail and equipment were purchased from the now-defunct Billerica & Bedford Railroad. The two engines were returned to Boston for alterations and the rail was shipped to Farmington under the direction of Mansfield, who was appointed superintendent of the Sandy River Railroad. Construction of the roadbed started on June 5, 1879, at the Farmington terminus, and on November 13, 1879, the first regular passenger train arrived at Strong from Farmington bearing "16 passengers and a Frenchman," as a local paper put it.

Following completion of the line to Strong, work commenced on the construction of the road to Phillips and progressed rapidly. On November 20, 1879, the company declared the line open for business between Farmington and Phillips. Seventeen men were listed on the payroll. From 1880 to 1885 the success story of the Sandy River Railroad spread throughout the state. Hundreds of visitors went to journey over the lines which twisted and rolled among the hills.

Other two-foot gauges connecting with the Sandy River Railroad were built, the first in 1883. It operated from Strong to Northward to Kinfield and was known as the Franklin & Megantic Railway. Between 1883 and 1904 more companies were formed and built two-foot-gauge lines, all connecting with the Sandy River. They were the Philips & Rangeley, completed in 1891; Kinfield & Dead River, 1894; the Eustis Railroad, 1903, and the Madrid Railroad, 1904. In that year the first negotiations were started toward consolidating all the roads into one company. Not until four years later, however, did the plan materialize. On July 1, 1908, following previous consolidation of three of the companies, the Phillips & Rangeley and the Madrid were put up for sale and immediately purchased by the combined companies known as the Sandy River & Rangeley Lakes Railroad. The Eustis Railroad operated under contract to the SR&RL and never became a corporate part of the system.

Highball and no ball!

In August, 1936, the Sandy River & Rangeley Lakes Railroad yards in Phillips looked as though business as usual would be the order of the day for some time to come. Engines No. 9 and No. 17 are shown. One

Earl W. Pratt Jr., 478 Fellsway, E., Malden, Mass.

Over 100 miles of main line stretched from Farmington northwest to Rangeley Lakes and from Farmington due north to Bigelow. Fourteen little engines hauling 263 various types of cars seriously went about the business of railroading. Summer days found the 13 passenger cars loaded to capacity with travelers from all over the United States, Canada, and even Europe. Many a newcomer considered the little railroad a joke at first, but as he traveled northward into the cool hills, the romantic setting combined with the stories (told en route by more seasoned passengers) of really heavy pay loads hauled the year 'round soon brought a change in attitude. Here he discovered a complete railroad empire in itself. All the problems and operations found on the larger standard-gauge systems were gathered within his reach. He talked to every employee from line worker to president at will. Few who had the fortune to ride the two-footers came away without feeling that they had experienced something long to be remembered.

Next in size and importance to the SR&RL was the Wiscasset, Waterville & Farmington Railway. Connecting with the Maine Central at Wiscasset, an Atlantic Coast town, the WW&FR went due north to Albion. At Weeks Mills, 28 miles from Wiscasset, the line branched west and north to Winslow.

Construction of the WW&FR started in June, 1894, at Wiscasset and was completed to Albion in 1896. The 35-pound rail came from Carnegie in Pittsburgh and four-foot ties were used, about 2600 to the mile. By 1901 the line was completed to Winslow and there it stopped. Litigation with the Maine Central concerning property rights and a grade crossing ended without agreement, and although construction started toward Waterville the line was never completed. At the same time the Sandy River & Rangeley Lakes Railroad was extending a line from Farmington to Waterville. Again controversy and refusals doomed the projected line and likewise any possibility of connecting with the WW&FR at Waterville.

At the height of its career the WW&FR owned seven locomotives, three passenger cars, two combination cars, two baggage-mail-express cars, 45 flat and 35 box cars, and five service cars. Its total trackage including sidings stretched 61.21 miles. Had the two systems been joined at the proposed point the life of the two-footers would have been lengthened, although not for too many years more. The hard-surface roads and the failure of the lumber business in Maine were actually the reasons for the downfall of both these two-foot empires.

The final runs on these roads came within

Earl W. Pratt Jr.

month later all activity had ceased. Equipment was either sold or scrapped and the tracks were ripped up. The 10-stall roundhouse is being used as a garage today.

In the August issue.

The prize-winning pictures in the first annual railroad photographic contest of the Railroadians of America will be published in next month's TRAINS. Watch for them.

two years of each other. The WW&FR operated its last train in June, 1933, and the SR&RL in June, 1935.

Bridgton, Me., has long been known as one of the most beautiful spots in the state. Located on the northwest shore of Long Lake in lower Maine, Bridgton attracted vacationists long before the construction of any railroad line, even though great difficulties were encountered by the traveler in reaching the town. Citizens learned of the successful operation of the Sandy River Railroad and decided that the answer to their problem of increasing tourist trade was a two-foot-gauge railroad.

Plans were made, meetings held, and various routes were suggested. Finally it was decided that the railroad should connect with the Portland & Ogdensburg Railway, now the Maine Central, at Hiram Junction, 16 miles south of Bridgton. The company was called the Bridgton & Saco River Railroad Company. The line was completed January 31, 1883, and that day the first train left Bridgton for Hiram Junction. Preliminary surveys, the supervision of construction and the selection of equipment had all been capably handled by George E. Mansfield.

The equipment of the B&SR consisted of two Forney-type engines, two coaches, an express-mail-baggage combine, a baggage car, five box cars and 10 platform cars. From January to September, 1883, the railroad carried 11,826 passengers a total of 173,478 passenger-miles and moved 4528 tons of freight.

Five miles to the north of Bridgton was another Summer-resort town, Harrison. It depended on lake boat and stage coach for tourist service between Bridgton and Harrison. Officials of the company watched this stream of potential revenue leave its trains and decided that the trackage should be extended to Harrison. In 1898 the line was carried northward along the west shore of Long Lake and a trestle was completed across the tip of the lake to Harrison. About this time the Maine Central took over the P&O and the name Hiram Junction was changed to Bridgton Junction. Trains leaving the junction went through to Harrison, where a yard and buildings were constructed and a wye was built to turn the locomotives, now three in number.

From 1900 to 1910 the B&SR struggled through deficits and surpluses, gradually adding equipment and improving the right of way. The Maine Central officials had been keeping a close watch on the freight revenue figures and decided to acquire control of the two-foot line. This they did in 1912, breaking down the old official setup and making the officers of the MC the controlling officials of the B&SR. Improvements were made and new equipment added, but about this time the lumber mills in the area began to close. By the end of another 15 years the company showed a very heavy loss and when the 1929 crash came the passenger business fell off. A company, the Bridgton & Harrison Railway, was formed by residents of Bridgton and vicinity, in anticipation of a forced sale of the railroad. They realized that if the railroad ceased operating all rail conections with the outside world would be gone. On June 1, 1930, the new company purchased the B&SR. By this time much of the original equipment

A study in gauges.

Two-foot and standard-gauge tracks approach the loading platform of a Maine industrial mill. It appears that the two-foot track is trying to sneak around the corner and away from the standard-gauge track.

Moody collection.

had been sold, or stored away, and only one engine was used. As even this would cost too much to operate, the officials decided to run a motor bus on the rails, using the locomotive only when extra-heavy loads were to be hauled. The service between Bridgton and Harrison was discontinued. Business fell off continually and in December, 1939, the road was offered for sale. A junk dealer from Newburyport, Mass., offered $20,001 for the entire superstructure provided permission could be obtained for abandonment. This was granted in 1941 by the Interstate Commerce Commission.

The remaining equipment of the Bridgton & Harrison seemed destined to end in a junk yard. Then Ellis D. Atwood of South Carver, Mass., came to the rescue. He purchased the remaining locomotive, old No. 7, box cars, flats, a caboose, a turntable, machine shop equipment and half a mile of track. Atwood owns 1800 acres of cranberry bog and is now having the track and equipment set up on Cape Cod. Five or six miles of rail will be laid down after the war. The reconstruction of the line is supervised by Everett Brown, former engineer on the B&H. Brown will have the equipment rolling on the new line by the end of this Summer and will stay with the sentimentally renamed organization, the Bridgton & Saco River Railroad.

The Kennebec Central Railroad, which had exactly five miles of two-foot-gauge track, held the distinction of being the only 24-inch-gauge railroad in Maine to operate throughout its existence at a profit. Located between Gardner, at which point it connected with the Maine Central, and Togus, the National Soldiers' Home, this short and narrow line operated from 1890 to 1929.

Its principal revenue came from passengers attending the band concerts at the home and from freight hauled between Gardner and the home. When its coal haulage business was cut into by trucking concerns and visitors to the home traveled over a new highway by automobile, the officials wasted little time in discontinuing operations. Most of the equipment was sold to the Wiscasset, Waterville & Farmington Railroad.

The Monson Railroad is the only two-footer operating in the United States today as a common carrier. Passenger service was cut out in November, 1938, after 35 years of continuous operation. Monson is the northernmost point in Maine that any two-footer reached, and the rails were laid due south from the town to connect with the Bangor & Piscataquis Railroad, now the Bangor & Aroostook.

The trackage, including sidings, remains nearly equal to the original distance, 8.6 miles. During the early years of its history the Monson piled up tremendous debts and when it was seen that the company was headed for bankruptcy the Monson Slate Company acquired control in 1909. Since then the railroad has been operated by the company and is hauling slate between a quarry in Monson and the junction point on the B&A. Rumors to the effect that the line would be abandoned have been denied by officials of the slate company. They state that they can operate the one locomotive and 28 flat cars for less money than trucks would cost. And that they can do it for a number of years to come.

Knowing where to hit.

An old story is told of Samuel M. Vauclain, who made the name of Baldwin Locomotive Works famous throughout the world. He was a stickler for inspection, and always insisted that locomotives didn't "break down." If they failed to operate, he contended it was because of a human failure to find and replace a worn part, a loose nut or bolt or some other correctable condition.

Returning from Europe, an engine of the ship on which Vauclain was a passenger suddenly stopped. He was asked to see if he could start it. He did—with a single blow from a mallet.

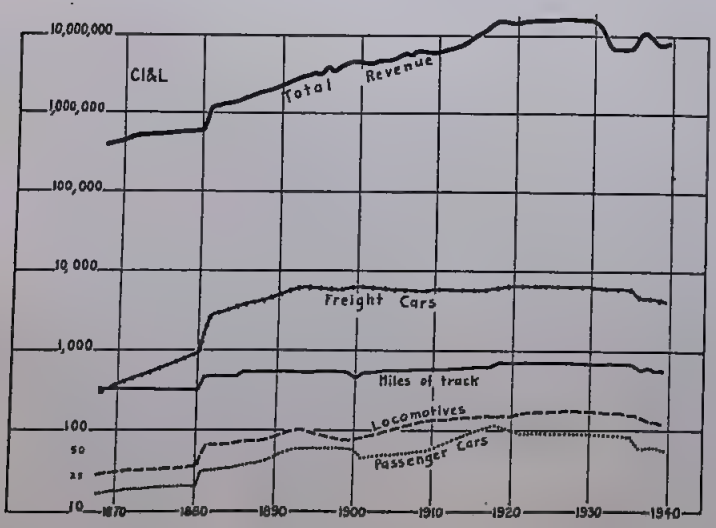
As a jest, Vauclain sent the president of the steamship line a bill for $500 for his services. The latter, surprised, returned it with a request that the bill be itemized. Vauclain complied with this bill:

For hitting engine with hammer	$ 1.00
For knowing where to hit	499.00
Total	$500.00

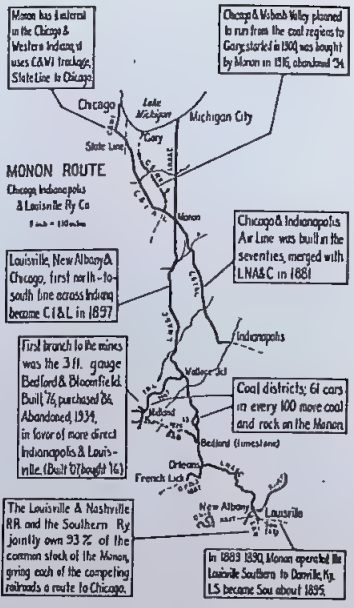
Monon Metabolism

THE Chicago, Indianapolis & Louisville is an X, with its two main lines crossing at Monon, a typical little railroad junction town in northern Indiana which gains its fame not from the few local stores and industries, but by nicknaming the railroad the Monon Route. It is only some 549 miles of single-track railroad, but it represents all that is a railroad, big or small. For solid old-time elegance take dinner on the *Hoosier*, running the 183.5 miles between Chicago and Indianapolis in 4¼ hours. For scenery, watch Indiana from the Monon, not the flat, sandy Indiana familiar to travelers who round the southern end of Lake Michigan but the lushly verdant southern and central Indiana. The 55 passenger cars are comfortable and substantial. Among the 127 engines are enough variety and graceful lines to satisfy the most particular lover of locomotives. Freight cars total 4000. Principal freight is soft coal.

Less than a decade ago the Monon was running not only its principal service between Louisville, Indianapolis and Chicago, but, in connection with the B&O, a Chicago-Cincinnati service. In fact, the B&O at one time wanted to take over the Monon, but was denied permission. The trackage would have strategically plumped out the western reaches of the larger system. At present Louisville & Nashville and Southern join in control, but the property is in receivership and their stock equity may be wiped out in reorganization. For these two roads Monon gives access to the Chicago area, not only via Louisville but also through Indianapolis, using B&O trackage rights from Cincinnati. The connections are all for freight, with no through passenger cars operated to connecting lines.



Revenue is indicated in dollars per year.


Monon has a lateral in the Chicago & Western Indiana; it uses C&WI trackage, State Line to Chicago
Chicago & Wabash Valley planned to run from the coal regions to Gary; started in 1904, was bought by Monon in 1916, abandoned '34
Chicago
Lake Michigan
Michigan City
Gary
State Line
MONON ROUTE
Chicago Indianapolis & Louisville Ry Co
Monon
Chicago & Indianapolis Air Line was built in the seventies, merged with LNA&C in 1881
Louisville, New Albany & Chicago, first north-to-south line across Indiana, became CI&L in 1897
Indianapolis
First branch to the mines was the 3 ft. gauge Bedford & Bloomfield. Built '76, purchased '86, Abandoned, 1934, in favor of more direct Indianapolis & Louisville. (Built '87, bought '16)
Valley Jct
Coal districts; 61 cars in every 100 move coal and rock on the Monon
Midland
Bedford (limestone)
Orleans
French Lick
The Louisville & Nashville RR and the Southern Ry jointly own 93% of the common stock of the Monon, giving each of the competing railroads a route to Chicago.
New Albany
Louisville
In 1883-1890 Monon operated the Louisville Southern to Danville, Ky. LS became Sou about 1895

This is the Monon, and the original lines that were welded together into the present corporation in 1897. All of the road is single track, with the exception of the Chicago terminal rights on the Chicago & Western Indiana. The graph to lower left shows what has happened to pertinent Monon statistics since the component lines were built. Revenue in recent years has dropped off more than the regional average, and recovered less in the 1937 boom. All physical assets have declined in number, although there has been an increase in net capacity because scrapped equipment was older and lighter. Vertical scale of the graph is logarithmic.

Next month.

Denver & Rio Grande's narrow-gauge Silverton Branch, described by Harold M. Mayer.

Locos below Mason & Dixon line.

Block signals, how they work and what they indicate.

Pictures, stories, maps, diagrams, and data.

"KEEP 'EM RINGING"

THE Liberty Bell is ringing again — throughout this militant land.

But it's not just one bell that rings today.

Tens of thousands of them are clanging "right of way for the U. S. A." as the troop trains roll, as freight trains bring together at the war plants every sort of raw material, and as they speed tanks, guns, planes and munitions from assembly lines to our fighting forces.

For the bells of America's locomotives—locomotives moving a million tons of freight a mile for every minute of the day and night—are Liberty Bells of 1942.

To do their part in keeping this "War of Movement" rolling, the railroads have enlarged their plant and increased the efficiency of their operations.

Today railroad equipment and railroad men are delivering the finest transportation job in history.

The size of that job is constantly increasing as ships are withdrawn from domestic service and as rubber-tired traffic turns more and more to the rails. To handle a growing job, railroads have bought and built more cars and locomotives, and would like to get still more. Other national needs for critical materials, however, have made it impossible for them to get as much new equipment as they would like. But you can count on it — the railroads will make the best use of what they have and what they can get. You can count on it — they'll keep up their all-out effort toward the great objective — to keep America working, to keep America fighting, to keep America free.

ASSOCIATION OF
AMERICAN RAILROADS
WASHINGTON, D. C.

Letters

★ Interesting sidelights on railroads as readers observe them.

Lake Shore Still Lives.

YOUR article on the Lake Shore & Michigan Southern in March TRAINS prompts me to add that as part of the architectural decoration on the La Salle Street Station in Chicago there is a sizable monogram, "LS&MS." . . . As further reminder of the road, the Railway Express Agency clerk in the station will invariably answer the phone by saying, "Lake Shore, ——— speaking." So, while "the *Official Guide* does not list it," the Lake Shore's memories and traditions linger on.

Edgar J. Kunze.
6644 N. Washtenaw Ave., Chicago, Ill.

Smoke Ring.

HERE is Engine 823 of the Union Pacific, blowing a smoke ring as she left Kearney, Neb., one cold Winter day.

Alan Carlson.

I enjoy TRAINS. I like the idea of taking a railroad each month to discuss in an article. I have learned much about railroads in general from those articles. I am sorry to see the discontinuance of the Engine of the Month series.

Alan Carlson.
1607 Sixth Ave., Kearney, Neb.

[Gil Reid, who drew the Engine of the Month series, is now in the army; and that is the reason for the cartoon's absence from recent issues.—*Ed.*]

For the Traveler.

I NOTICED in May TRAINS that you recommend to prospective travelers that they consult the *Encyclopedia Brittanica* or the *National Geographic* in advance, in order to learn about the country they are to visit and thus render their trips more enjoyable. May I recommend for this purpose the various state guides issued under the sponsorship of the Federal Works Agency? Every state now has one, and they are indispensable for any traveler. I have used intensively those for California, Nevada, Idaho, New Mexico and Colorado, and can assure you that they increase the pleasure of travel 100 per cent. The historical matter they contain can be found nowhere else.

S. G. Morley.
2635 Etna St., Berkeley, Calif.

CV Has 22 Consolidations.

IN THE description [on page 2] of the photo on the rear cover of June TRAINS, reference is made that we own five locomotives of this [Consolidation] type. I thought you might be interested to know that we actually own a total of 22 Consolidation-type locomotives similar to the 463 shown.

H. A. Carson.
General Manager, Central Vermont Railway, Inc.
St. Albans, Vt.

. . . You seem to imply that the lower end of the CV is in the Connecticut River Valley. It leaves the Connecticut River near the north border of Massachusetts and eventually paces Harvard-Yale races on the Thames' west bank.

Alex. Hamilton.
212 Ashmont St., Dorchester, Mass.

Indiana Railroad.

REFERRING to the story of the Indiana Railroad [April TRAINS], the Indiana Service Corporation (which is the company which operated the Fort Wayne end prior to going under the Indiana wing, and which still operates the city lines in Fort Wayne) still has a line some 15 miles long north of Fort Wayne, connecting with the Butler Branch of the Pennsylvania Railroad, for freight only—mostly coal for the Spuy Run power plant of

the ISC. This is a portion of the line formerly operated to Garrett, Kendallville, and Auburn.

Roy W. Carlson.

522 W. Washington St., Fort Wayne, Ind.

There is another portion of the system being operated in addition to the Terre Haute line: the six-mile section in southern Indiana, between Watson Junction and Speeds, formerly a part of the Louisville line. It is freight-only and connects a large cement plant at Speeds with the B&O at Watson Junction. The line is called the Southern Indiana; ex-Indiana power is used.

Quentin A. Stoeckel.

4 Florida Ave., Belleville, Ill.

. . . The author forgot to mention one train that left at 5 p.m., the *Tecunseh Arrow* to Lafayette. I lived at Frankfort, and of course that was my favorite "train." That particular car was scheduled for one hour to Frankfort, approximately 45 miles, which was pretty good in those days.

Tom H. Forrest.

7759 Sheridan Rd., Chicago, Ill.

Gold Spike Memories.

"SPIKE of Gold" in May TRAINS reminded me of several things of interest that developed in the reconstruction of the Central Pacific.

In 1902 I entered railroad service on the Reno-to-Brown's subdivision of this project. The work was being done by the Southern Pacific Company's engineering department. We found boulders of many tons' weight that had been blown several hundred feet to the opposite side of the Truckee River during the original construction. This must have been the result of a desire to rush the job all possible, a disregard of the quantity of explosive used, or the inability to estimate the quantity of black powder (the only explosive available at the time) necessary to do the required task.

We found many survey stakes used on the original line on which the markings were easily readable. They had been marked with red keil, generally used at that time for survey purposes. Sand storms had worn the surrounding wood away, leaving the figures in sharp relief.

Answering the question on page 46, "What is a short line?": Some years ago I asked this question of the late Bird M. Robinson, then president of the American Short Line Railroad Association. His answer was, "A road short either in mileage or earnings, usually the latter." I do not suppose that this is the definition given in the association's constitution.

We on the West Coast do not consider the Western Pacific a short line. It has main-line track and equipment, and a splendid main-line personnel.

William S. Wollner.

Secretary, Pacific Railway Club,
P. O. Box A, Sausalito, Calif.

Trainless State Capital.

SINCE the abandonment by the D&RGW of its narrow-gauge stem from Santa Fe (N. Mex.) north, that city is, I believe, the only state capital in America that does not have any railroad passenger service, either on the main or on a branch line. The New Mexico capital city is served by Santa Fe buses from Lamy, N. Mex., the nearest point on the AT&SF main line.

Andrew R. Harrison.

3138 Wynwood Lane, Los Angeles, Calif.

[Santa Fe still sees an excursion train occasionally. —*Ed.*]

Photo is correct.

John C. Hammond, 1629 Morton St., Alameda, Calif., writes: "I notice that your halftone on page 8 of May TRAINS shows the original print of the completion of the transcontinental railroad, while the masthead decoration [page 3] is a wood cut of the same celebration. Is it a fact that wood cuts print a reverse picture, or do you have the photo in reverse?" The photo is correct. It may be that the engraver laid a photo face-up on his block of wood, in order to cut the detail, which would, of course, cause the picture to print in reverse; but notice that he did take the trouble to interchange the stacks of the locomotives, so that you find a UP stack on a CP engine, and vice versa.

The Month

★ Railroads on West Coast are blacked out at all times.

★ "Blackout" for the civilian means all lights out, but for the railroad the interpretation cannot be so strict. The Office of U. S. Civilian Defense, in its blackout booklet, mentions the importance of allowing sufficient light for the continued operation of essential industry and transportation. Our railroads must be kept going. The main objective of a railroad blackout is to afford sufficient light for safe operation of trains without allowing such light to serve as a target for bombers. During the first blackouts in England transportation came to a virtual standstill, but this was soon found to be impractical and British trains now operate at speeds up to 50 miles an hour under all conditions except when the immediate vicinity of travel is being bombed. During the first hectic blackouts in this country there was a disturbing tendency on the part of some civilian authority to heave rocks at railroad lights which the railroads themselves couldn't extinguish because of federal law. However, through the workings of the various Civilian Defense offices, blackout efforts were coordinated and such misunderstandings were cleared. The Southern Pacific, with its strategic lines on the exposed West Coast, was able to devise and inaugurate methods of wartime operation that afforded maximum service to the freight and passenger demands of both the armed service and the public, and was one of the most forward-looking transportation systems in this matter of adapting itself to wartime air raid conditions. Other roads have taken similar measures, in many cases profiting by the early experience of coastal roads.

One of the classic sights in the American scene has long been a fast train at night. The bright beam from the headlight, the red glow from the fire box, the plume of white smoke waving back over the brilliantly lighted cars: these things form a picture that is cherished in many hearts. That is why one of the most somber reminders of war is the sight of a train moving at night. Circular metal hoods now cover the locomotive headlight and rear-end marker lights. Protective screens hide the light from the fire box. In blackouts even the storm curtains in the engine cab are drawn and the headlight itself is dimmed. Every window on the train is dark either because it has been painted black or because its blinds have been drawn, and the plume of white smoke is now just a smudge blending into the darkness of the night as the engineer crowds his fire box. In most coastal regions all shades in passenger cars are now drawn from sundown to sunup irrespective of blackout conditions. Windows of mail and express cars and other windows not having shades have been painted black or covered by sheet-metal panels. Small blue night-lights have been installed at critical spots such as vestibules in most passenger cars. The shielded streamliners pulling into Chicago are a grim reminder even to the central states that we are very much at war.

All fixed lights which are necessary for the operation of trains, such as signal lights, switch lights, and station platform lights, are hooded in such a way that the light cannot be seen from above, and when necessary the illumination is cut down so that no glare is apparent. Switchmen's lanterns are kept extinguished when not actually in use. Naturally many experiments were made during the development of railroad blackout regulations, and airmen of our own armed forces went aloft to see what could be seen. The railroads will and must continue to run under any conditions, and so they have been among the first to take precautions.

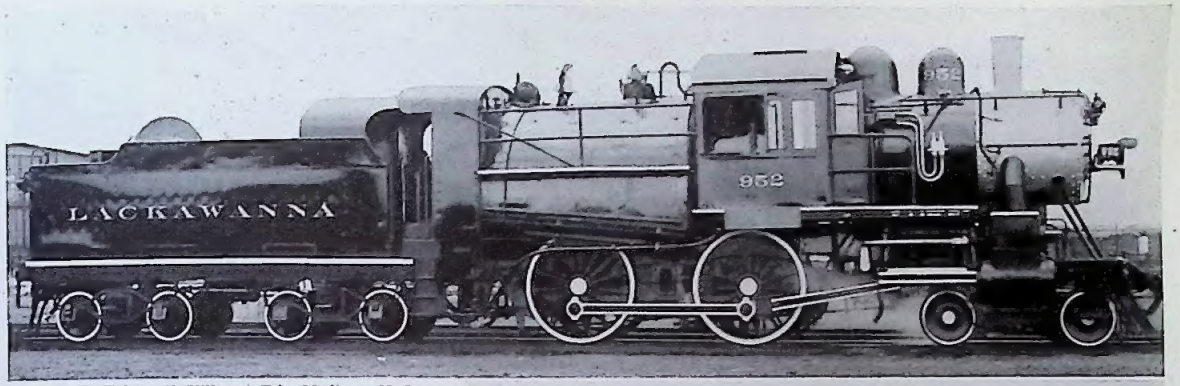
★ Unique among crack trains is the Illinois Central's new *Panama Limited*, not one of whose nine cars is devoted entirely to lounge space. All but the diner contain some sleeping accommodations, including a new baggage-dormitory type of car at the head of the train. The extra fare from Chicago to New Orleans now includes a dinner. Also new is a directory of names and business connections of passengers.

★ The Nevada County Narrow Gauge has received I. C. C. permission to abandon its entire line, 20.7 miles, from Colfax, Calif., to Nevada City.

Lamps of Mars.

Somewhere in California are these queer creatures, ordinary railroad switchstand lanterns with long hoods on all four sides so as to shield the light from the eyes of enemy airmen. Blackout regulations have added similar shields to signals and headlights.

J. C. Hammond, 1629 Morton St., Alameda, Calif.

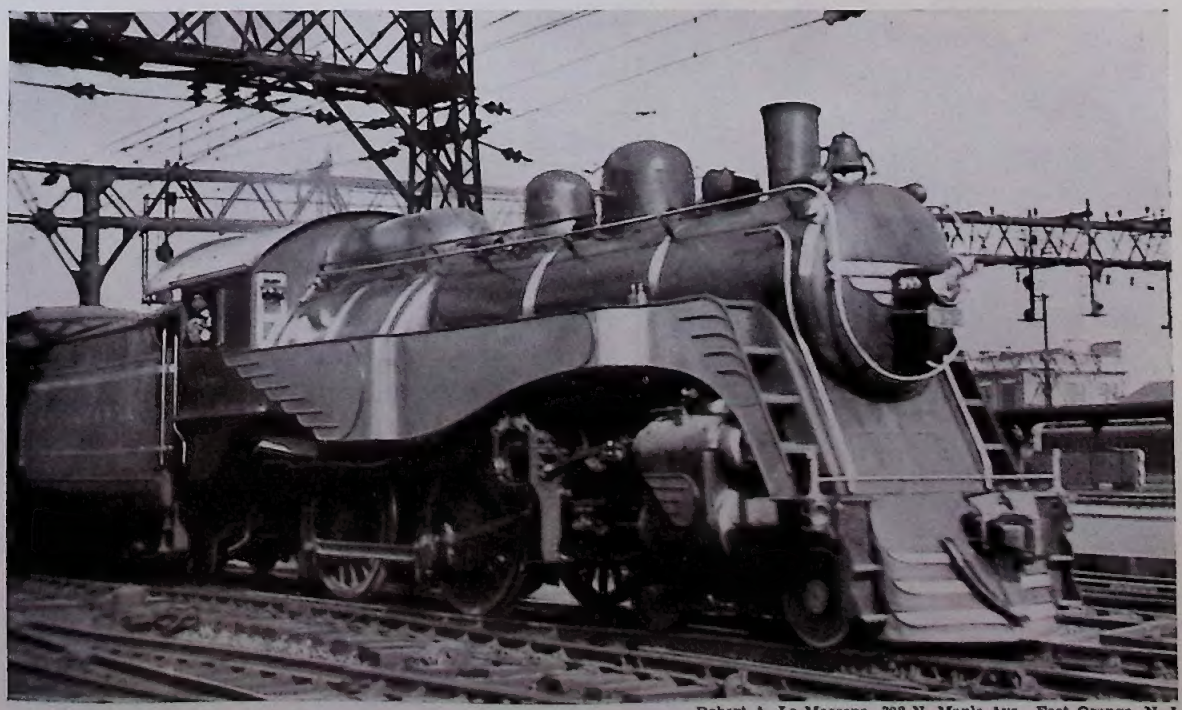


Thomas T. Taber, 43 Hillcrest Rd., Madison, N. J.

Back about 1900 the Lackawanna had several score small locomotives of the Mother Hubbard type. Gradually there was less and less use for power this small, and the Mother Hubbard cab went out of style because it wasn't too practical. The remaining Mother Hubbards were rebuilt in recent years with conventional cabs and cleaned-up boiler lines. The 4-4-0's on this page represent three stages in the modernization. No. 952 is the last of the Lackawanna Mother Hubbards, dolled up in her original condition for the New York World's Fair by a group of railfans. She was presented to the Railway and Locomotive Historical Society after the fair. No. 970 is the same class, as modernized, and the streamlined 988 at the bottom of the page is the ultimate version of a 1900 4-4-0.

Theo. A. Gay, 624 78th St., Brooklyn, N. Y.

Three evolutionary stages in the life of a Lackawanna locomotive.



Robert A. Le Massena, 398 N. Maple Ave., East Orange, N. J.

Trains

Linn H. Westcott. See page 6.